THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—17TH YEAR. SYDNEY, SATURDAY, AUGUST 2, 1930. No. 5.

Table of Contents

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— PAGE.

"Indications for Induction of Abortion in Pulmonary Tuberculosis," by E. W. FAIRFAX, M.B., Ch.M., M.R.C.S., L.R.C.P. .. 143
"Indications for Induction of Abortion in Heart Disease," by H. C. E. Donovan, M.B., Ch.M. .. 144
"The Induction of Abortion and Premature Labour in Mental Disorders," by W. S. DAWSON, M.D., M.R.C.P. .. 147
"Breast Feeding," by GUY SPRINGTHORPE, M.B., M.R.C.P. .. 152

REPORTS OF CASES—

"Acute Thyreoiditis in the Puerperium," by A. M. WATKINS, M.B., B.S. .. 158
"Recovery from Hyperthyreoidism following Treatment by Lugol's Solution," by R. COUPLAND WINN, M.C., M.B., Ch.M. .. 158

REVIEWS—

Alcohol .. 159
Mental Disorders .. 159
Bacteriophagy .. 160

NOTES ON BOOKS, CURRENT JOURNALS AND NEW APPLIANCES—

An Inhaler for Ether Administration by the Open Method .. 160
The Writings of the Late James Mackenzie .. 160
Progress in Medicine .. 160

LEADING ARTICLES—

The Induction of Abortion in Visceral Disease .. 161

CURRENT COMMENT—

Spastic Ileus .. 162
The Normal Tonsil .. 163

ABSTRACTS FROM CURRENT MEDICAL LITERATURE— PAGE.

Dermatology .. 164
Urology .. 164

SPECIAL ABSTRACT—

The Skin Reactions, Blood Chemistry and Physical Status of "Normal" Men and of Clinical Patients .. 166

SPECIAL ARTICLES ON DIAGNOSIS—

Iritis .. 170

BRITISH MEDICAL ASSOCIATION NEWS—

Scientific .. 171
Medico-Political .. 174

UNIVERSITY INTELLIGENCE—

The University of Sydney .. 175

CORRESPONDENCE—

Diathermy of Tonsils .. 176
Revision of the Australasian Pharmaceutical Formulary .. 176
Encephalitis Periaxialis Diffusa .. 176
Medical Certificates .. 177

CONGRESS NOTES—

Conference on Silicosis in South Africa .. 177
International Association for the Prevention of Blindness .. 177

BOOKS RECEIVED .. 177
DIARY FOR THE MONTH .. 178
MEDICAL APPOINTMENTS .. 178
MEDICAL APPOINTMENTS VACANT, ETC. .. 178
MEDICAL APPOINTMENTS: IMPORTANT NOTICE 178
EDITORIAL NOTICES .. 178

INDICATIONS FOR INDUCTION OF ABORTION IN PULMONARY TUBERCULOSIS.[1]

By E. W. FAIRFAX, M.B., Ch.M. (Sydney), M.R.C.S. (England), L.R.C.P. (London),
Honorary Physician, Royal Prince Alfred Hospital, Sydney.

IT is a recognized fact that it is much less difficult to induce abortion during the first three months than during the second three months of pregnancy. During this second period there is likely to be considerable loss of blood and shock, even when induction is carried out under the best conditions. After the end of the sixth month the operation is more easily performed and with less risk to the patient.

There can be no question as to the advisability of induction at any period of pregnancy when the history, symptoms and physical signs indicate extensive and advancing disease in the lungs. If the condition is recognized before the end of the third month, it will be much better for the patient. At the end of the fifth month a delay of a month or six weeks should be considered, if the patient can be kept at rest and under observation.

The histories of tuberculous women who have had full time or nearly full time infants, indicate that the time directly following the confinement is particularly dangerous. The initial symptoms and signs may appear then or quiescent disease may be lighted up, even if the health during pregnancy had been fairly good. In spite of this, there are some cases in which it appears to be justifiable to allow the pregnancy to continue to full term or near it.

The cases under consideration may be divided into three classes: (i) Those in which there can be no doubt as to the advisability of induction, (ii) the doubtful cases, (iii) those in which pregnancy may be allowed to continue.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on May 29, 1930.

When There can be no Doubt as to the Advisability of Induction.

A patient under thirty years of age, two to three months pregnant, with definite subapical disease, may have the physical signs indicating activity and confirmed by radiographic film. From the history the disease in the lung appears to be of recent origin and there are symptoms and signs of toxæmia. The factors against allowing the pregnancy to continue are the age of the patient, the type of the lesion, the symptoms and signs of toxæmia, such as loss of weight, sweating, anorexia, pyrexia and increase in the pulse rate. If the stage of pregnancy is four and a half to five months, the effect of absolute rest in bed for a fortnight should be observed. When the temperature settles to normal or a little above normal, the cough is quietened by sedatives, the general condition may improve or remain stationary. It may then be justifiable to allow the pregnancy to continue until the end of the sixth month.

Doubtful Cases.

A patient, aged thirty-two years, had three children, nine, five and three years of age. She was pregnant two and a half months. There was a history of cough for four years, of having been very well during the last pregnancy. She nursed the baby for six months and did not lose weight. The patient had previously vomited for two to three weeks, but when seen had not vomited for ten days and felt very well.

Her weight was 1·8 or 2·2 kilograms (four or five pounds) less than usual, but she looked well and was not anæmic. Her temperature, taken for a week at home doing her housework, was up to 37·5° C. (99·6° F.), and the pulse rate was 100 in the evening.

After resting for a week at home the pulse and temperature were not above normal. She continued to have a cough, the sputum was scanty, but tubercle bacilli were present. There were definite physical signs in the upper third of the left lung, indicating tuberculous disease. This was confirmed by the radiograph film, showing considerable fibrosis. She was kept quiet, but not in bed and had no symptoms, except a cough, until her confinement at full time. Now two years after this confinement she is very well, has the same physical signs, but no symptoms.

In this instance the reasons for deciding in favour of allowing the pregnancy to continue were: (i) The history of the last pregnancy; (ii) the good general condition of the patient; (iii) the absence of symptoms and signs of toxæmia, except a slight rise in temperature and pulse rate, which subsided on resting; (iv) the apparent chronic and stationary type of disease, as indicated by the history, physical signs and radiographic film.

The reasons for possible induction were: (i) The early pregnancy, namely two and a half months; (ii) the loss of weight; (iii) the slightly raised temperature and pulse rate; (iv) the risk of increased activity during the pregnancy or after the confinement. If the temperature had not become normal on resting, and if the general condition had not been satisfactory, there would have been definite indications for induction.

The patient and her husband were very much averse to any interference. It was decided to allow the pregnancy to continue, while there were no signs and symptoms of active disease.

The following factors may be considered in deciding for or against premature induction before the end of the third month: (i) Family history, (ii) previous obstetric history, (iii) evidence of advancing disease.

The family history might show some lack of resistance. For instance, a patient aged thirty-one years, a *primipara* and two and a half months pregnant, with symptoms and signs of quiescent disease in the lung of five to six years' duration, had a history that her father, two aunts and three brothers had died of pulmonary tuberculosis. This was considered a definite indication for induction.

The history of a previous pregnancy and *post partum* history may define the resistance or otherwise. If there has been definite failure of health, the risk of allowing the pregnancy to continue is not justifiable.

The recent history of the patient may give some indication of the progress of the disease. Where there is loss of weight, not due to vomiting, advancing symptoms and signs of toxæmia and physical signs indicating active disease, induction is necessary. This may occur at an early stage of the pulmonary disease and as a lighting of old quiescent disease.

When the Pregnancy may be Allowed to Continue.

A patient, aged thirty-five years, had four children, the youngest three years of age. When first seen, she was four and a half months pregnant. She had had an hæmoptysis at twenty and pleurisy at twenty-two years of age. She had had bronchitis in the winter for years. Her previous pregnancy was uneventful, but she was advised not to nurse her baby. She coughed in the morning and occasionally during the day. Sputum was white and frothy. Tubercle bacilli were not found. General nutrition was moderately good and colour good. Temperature taken for a week at home while she was doing her housework, was normal. Physical signs and radiographic film gave definite evidence of extensive fibrosis of the lower two-thirds of the left lung, with traction of the heart to the left. The patient had a normal confinement. Now, four years later, she is very well, except that her heart is further to the left and she is a little short of breath.

The reasons in favour of allow the pregnancy to continue were: (i) The duration of the disease and the evidence that the disease was in a quiescent stage and had been for some time; (ii) the stage of the pregnancy; (iii) the age of the patient and type of the pulmonary disease, namely, extensive fibrosis.

INDICATIONS FOR INDUCTION OF ABORTION IN HEART DISEASE.[1]

By H. C. E. DONOVAN, M.B., Ch.M. (Sydney),
Honorary Medical Officer, Crown Street Women's Hospital, Sydney; Demonstrator in Operative Obstetrics, The University of Sydney.

THE question of induction of abortion in cases of pregnancy complicated by organic lesions of the heart is always exceedingly difficult and the

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on May 29, 1930.

opinions held by recognized authorities and the indications for termination of pregnancy recognized in different clinics are very divergent. This must necessarily be so, because of the fact that there are present in each case some factors that are difficult and some that are impossible to estimate accurately. For example, it is difficult for the most experienced physician to predict the rate of advance of the disease in a given heart, quite apart from the question of pregnancy, and it is practically impossible in the case of a *primipara* to predict the length of her labour and the amount of *vis a tergo* necessary for the woman to reach a stage at which forceps can be applied without undue trauma to the soft parts of the mother and the cranium of the child. Such things as the length of time that the heart lesion has existed, its rate of progress, the response to effort of the heart muscle, the actual form of the disease, the parity of the patient, the history of previous pregnancies, the age of the patient, the number of living children, the occupation and necessity for hard work and other factors have to be considered in each individual case. It is not surprising, therefore, that marked differences in opinion will continue to exist. There is no way of representing either in foot pounds of energy or by comparison with running a distance the actual stress on the general and cardiac musculature in a normal average labour.

There are cases in which it is a calamity for pregnancy to have occurred at all and in which marriage should never have been allowed. In such the decision to terminate the pregnancy is obvious. In others there are murmurs representing incompetence or stenosis of valves in which the lesion has existed for years and the patient has led a strenuous existence without breakdown or any symptoms referable to the heart; the patients may even have passed through previous labours with the heart in the same condition; in these the decision to allow pregnancy to go on to term is equally easy. But most cases are intermediate between these and the decision is far from easy.

The Nature of the Lesion.

It is generally agreed that the prognosis is worse in aortic disease than mitral and that mitral stenosis has a worse prognosis than regurgitation. I have learned to dread mitral stenosis and have seen a number of patients who have passed through the labour apparently well, but in whom, in spite of the second stage being shortened as far as possible by early application of forceps, complete heart failure and auricular fibrillation began within a few days with either death in a few weeks or months or a completely ruined heart. Aortic disease as a complication of labour is far less common, but in my experience its prognosis, if the pregnancy is allowed to go to term and a Cæsarean section performed, is relatively good.

I can recall a case some years ago in which a woman did not come under observation until she was completely orthopnœic. She had a water hammer pulse and a double aortic murmur. She took an anæsthetic propped up and had an uneventful convalescence and was alive and performing household duties four years later. She then changed her address and could not be further traced.

In mitral stenosis it is the circulatory changes of late pregnancy that cause the damage and this is not completely avoided by a Cæsarean section at calculated term, while in aortic disease the risk is mainly that of the muscular effort of labour and Cæsarean section gives comparative safety.

I have seen only one case of congenital disease of the heart complicating pregnancy.

The patient had the typical club fingers and dusky complexion and was very dyspnœic and had congested lungs. She was five months pregnant. I did a hysterotomy, as I did not think that she could stand the strain of expelling even a five months fœtus. She took the anæsthetic fairly well, but died on the fourth day with deep and increasing cyanosis and tachycardia.

The heart of exophthalmic goître bears pregnancy and labour badly and patients so affected should not marry in the acute stage. If the tachycardia is marked and the basal metabolism rate unfavourable, pregnancy should be terminated. I have carried patients of this type over when seen late in pregnancy. They bear labour badly, the pulse rate rising in the first few hours of first stage pains to an alarming degree, partly, in all probability, from psychic reasons. They bear anæsthesia well and do well with Cæsarean section. But the pregnancy has such a bad effect on the disease that the pregnancy should be terminated in all cases seen in the early months. The heart of chronic nephritis suffers markedly from pregnancy, but the indications for treatment are those of the nephritis and I have dealt with this in a recent paper.

The Duration of the Lesion.

There is always far more risk in recent than in long standing disease of the heart. In the latter there has been a chance to observe the rate of progress of the lesion and the mere fact that it has existed for years argues a fairly competent muscle and a good response to effort, if the woman has been leading an active life.

History of the Case.

If there have been signs of failure of compensation, as shown by œdema, dyspnœa or attacks of auricular fibrillation at any time, the risks of late pregnancy and labour are great and abortion should be induced. If the patient has had previous pregnancies accompanied by signs of breakdown of the heart, the pregnancy should always be terminated.

Condition of the Heart.

If there is dilatation, poor quality in the first sounds and if the spacing of the sounds tends to become equalized and the sounds approach one another in length and quality, the fœtal rhythm, the prognosis is bad and safety lies in interference. Œdema, hæmoptysis, enlargement of the liver, dyspnœa, a poor response to effort and a tendency

to fibrillation occurring early in pregnancy, alone or in combination, are of grave import. If the case is not urgent the effect of complete rest and drug treatment may be tried for a week or two. Œdema alone is of less importance and some may be tided through pregnancy and labour or Cæsarean section.

The Parity of the Patient.

The parity of the patient affects the prognosis in two ways. In the pregnancy of a *primipara*, especially an elderly one, other factors being equal, there is more justification in acceding to the wishes of the parents in allowing some risk to be undergone in the hope of at least one live child. If, on the other hand, there are one or more living children, one can expect an easier labour and less strain on the heart and there is more justification for allowing pregnancy to progress. If, however, the heart lesion has occurred after the birth of the last child or if the disease has markedly progressed since the last birth, there are indications on economic and other grounds for terminating the pregnancy and prohibiting further pregnancies. It is far better for the mother to survive in moderate health to care for her children than to risk her life by subjecting her heart to the strain of labour and pregnancy.

Social Condition of the Patient.

Social condition affects the treatment in doubtful cases to the extent that it is of far more serious importance to a woman who is a wage earner herself or has to perform household drudgery that her heart should be as competent as possible, than it is to a woman who is so placed that she can afford to nurse her heart through successive mild breakdowns. Among the poorer classes the prolonged rest in bed necessary if the pregnancy be allowed to go to the stage of viability, may be impossible.

Term of Gestation when First Seen.

The term of gestation when the patient is first seen, is a factor that is of the utmost importance in deciding upon the course of treatment. The emptying of a uterus up to two months is a relatively easy and safe procedure, being performed at one stage and with few risks of hæmorrhage or sepsis. Between two and three months the risks from hæmorrhage and the difficulties of completely emptying the uterus are much greater. After three months the one stage operation carries risks of severe hæmorrhage and it is to be remembered that many of these patients bear loss of blood badly. The operation in such cases must usually be performed after some previous dilatation by gauze, tents, bougies *et cetera* with increased risk of sepsis. After the fourth month the question of hysterotomy (minor Cæsarean section) may arise and this has the advantage that it can be combined with resection of the tubes and in many cases is less strain on the heart than the effort necessary to deliver a fœtus at five months or older. In addition, the nearer the woman is to term the less the duration of the stress before her and the greater the justification for allowing the pregnancy to proceed to viability when Cæsarean section under general or spinal anæsthesia may be performed.

The Wishes of the Parents.

While the desire of the parents to end the pregnancy merely to avoid parenthood must not be allowed to influence our decision in the slightest degree, the view of the man as to how far he is prepared to risk the life and health of his wife for the sake of having a child should be a factor in our decision and more so is the willingness of the woman to undertake the risk. The decision of the man and woman after consideration of the facts placed before them may decide the course of treatment. In some cases it is our duty to urge termination of pregnancy with all our power and in doubtful cases it may be our duty to place all the facts before the parties concerned and abide by their decision.

General.

Each case must be decided upon its own merits, every factor being given due consideration. As a consultation is a necessity in all cases, I consider that the joint opinion of a consulting physician and an obstetrician is the most valuable. Grave moral and legal as well as medical matters are involved and the best results will follow a conscientious exercise of common sense and experience.

I regret that I am unable to give any hard and fast indications for induction of abortion in these cases, but hope that I have impressed the difficulties of decision and brought to your consideration some of the important factors that should be considered before coming to what is truly a grave decision. As guiding rules I can only offer the following broad generalizations.

A history of failure of compensation at a previous confinement or at any time at the least calls for prolonged rest and close observation and in most such cases abortion is indicated. The decision to allow pregnancy to progress should be taken only after frank explanation of the dangers involved.

The presence of œdema persisting in spite of rest, hæmoptysis, enlargement of the liver or actual or impending fibrillation are absolute indications for immediate emptying of the uterus.

If the history of heart disease is recent, the presence of indications less absolute than the above should incline one to terminate the pregnancy. In such cases pregnancy may sometimes be allowed some years later if the lesion becomes definitely stationary.

In patients seen late in pregnancy an effort should be made to carry the gestation on to viability of the fœtus and I am strongly of opinion that in these circumstances Cæsarean section rather than induction of labour is by far the better treatment in that it saves the heart the entire stress of the actual labour.

THE INDUCTION OF ABORTION AND PREMATURE LABOUR IN MENTAL DISORDERS.[1]

By W. S. DAWSON, M.D. (Oxon), M.R.C.P. (London),
Professor of Psychiatry, University of Sydney.

FROM time to time the psychiatrist is consulted as to the desirability of terminating pregnancy. The problems which are put to him, may be classified under three headings: (i) Relief of mental symptoms during pregnancy, (ii) possibility that mental trouble may develop during pregnancy or after parturition, (iii) possibility of hereditary taint in the offspring.

RELIEF OF MENTAL SYMPTOMS DURING PREGNANCY.

Although many pregnant women display subtle changes in disposition such as emotional instability, irritability and capriciousness, definite alienation is rare. Various authorities have estimated that mental disorders of pregnancy account for not more than 1% of the female admissions to mental hospitals. (Clouston, 1% of 1,530 admissions; Hoche, 1% of 2,404 admissions; Bevan Lewis, 0·6% of 1,814 admissions; New South Wales mental hospitals, 0·4% of 732 admissions.)

Although the figures must vary somewhat according to local circumstances, particularly the provision of reception houses and psychiatric clinics where patients can be treated without certification, nevertheless it is generally agreed that pregnancy is infrequently recorded as a factor in the insanities.

I have collected data concerning the mental disorders associated with child bearing from records in Callan Park Mental Hospital (certified) and Broughton Hall Psychiatric Clinic (voluntary) covering 427 cases. Of these 107 occurred during pregnancy. The data are set out in Tables I and II.

Confusion During Pregnancy with Recovery.

In the confusional group there were associated physical disorders as follows:

CASE I: A patient, aged thirty-four, suffered from alcoholism with mitral stenosis. She became confused during the latter part of her third pregnancy with aggravation of the heart condition. Pregnancy was allowed to continue until full time after which the heart condition and confusion cleared up.

CASE II: A patient, aged thirty-three, suffered from albuminuria and confusion. She aborted at the fifth month of her third pregnancy. She recovered two weeks later.

CASE III: A patient, aged twenty-seven, suffered from albuminuria. Full time delivery occurred with recovery from mental symptoms.

CASE IV: A patient, aged nineteen, suffered from glycosuria. Her mental confusion cleared up after full time delivery of her first child.

CASE V: A patient, aged twenty-seven, suffered from chorea with confusion during the seventh month of her third pregnancy. She recovered after giving birth to a still-born child.

CASE VI: A patient, aged thirty-four, had albuminuria during her second pregnancy and aborted at the sixth month; she became confused and recovered two months later.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on May 29, 1930.

TABLE I.

Showing Particulars of 107 Cases of Mental Disorder occurring during Pregnancy.

Observation.	Recovered.		Died.	Condition Chronic.	
	Certified.	Voluntary.	Certified.	Certified.	Voluntary.
Age (in Years):					
Up to 20	4	1	—	1	2
20 to 25	6	7	—	2	3
25 to 20	9	16	2	1	2
30 to 35	10	8	4	6	4
Over 35	4	3	7	2	3
TOTAL	33	35	13	12	14
According to Number of Pregnancies.					
Number of Pregnancies:					
1	10	5	4	4	4
2	5	6	3	1	1
3	11	14	2	4	6
4	4	6	—	1	3
Over 4	3	4	4	2	—
Onset of Symptoms Before the Fifth Month.					
Number	13	16	6	1	7
Onset of Symptoms After the Fifth Month.					
Number	20	19	7	11	7
Previous Attacks in association with Child-bearing.					
Number	5	10	0	1	—
Types of Mental Disorder.					
Condition:					
Confusion	5	1	7	—	—
Melancholia	28	14	2	1	3
Mania-Melancholia[1] ..	—	1	—	1	—
Neurasthenia[2] ..	—	15	—	—	3
Anxiety state ..	—	2	—	—	2
Hysteric	—	2	—	—	4
Schizophrenia ..	—	—	—	9	2
General Paralysis ..	—	—	3	1	—
Epilepsy	—	—	1	—	—

[1] A case with definite phases both of morbid excitement and of depression during pregnancy.
[2] Many of these cases might well be labelled mild melancholia.

TABLE II.

Showing Duration of Illness and Recoveries.

Date of Recovery.	Onset of Symptoms Before Fifth Month.		Onset of Symptoms After Fifth Month.	
	Certified.	Voluntary.	Certified.	Voluntary.
Before full term	7	8	—	1
Within four months *post partum*	3	5	10	10
Four to eight months *post partum*	3	1	6	3
More than eight months *post partum*	—	2	4	5

Insanity of Pregnancy Followed by Death.

I have obtained records of thirteen cases of insanity of pregnancy with a fatal termination.

CASE I: A patient, aged thirty-five, had two children. She suffered from mitral stenosis. She became worried during her third pregnancy and afraid of the consequences. Labour was induced at seven and a half months for

physical reasons. She developed the idea that she had had a criminal abortion, became exhausted and died of bronchopneumonia.

CASE II: A patient, aged thirty-seven, was restless and sleepless during the sixth month of her first pregnancy. She was very apprehensive. She became violent during delivery at full time and died a month later of pneumonia.

CASE III: A patient, aged thirty-three, became restless, agitated, destructive and confused during the seventh month of her first pregnancy. No change occurred after a normal labour. She became more exhausted, pulmonary tuberculosis was diagnosed, of which she died two years later.

CASE IV: A patient, aged thirty-eight, had eight children. She had a miscarriage at the third month of her ninth pregnancy. Sepsis followed. She became excited and confused and died of multiple abscesses.

CASE V: A patient, aged forty-three, had six children. At the seventh month of her seventh pregnancy she became restless and confused and died of pneumonia before delivery.

CASE VI: A patient, aged thirty-four, became depressed, thin and ill at the fifth month of her first pregnancy. She died some weeks after full time labour of acute enteritis.

CASE VII: A patient, aged twenty-six, had three children. She became childish and confused before the fourth pregnancy and became gradually worse. General paralysis of the insane was diagnosed. She died at the seventh month of pregnancy.

CASE VIII: A patient, aged twenty-seven, had two children. Gait and speech became affected before the third pregnancy, transient seizures occurred during pregnancy, a living child was born at full time. The patient died after a succession of seizures twenty-one months later. She suffered from general paralysis of the insane.

CASE IX: A patient, aged thirty-two, had been epileptic since childhood. The fits became more frequent during her first pregnancy; she became noisy and confused at the seventh month and gave birth to a still-born child, collapsed and died.

CASE X: A patient, aged forty-four, had eight children. During the second half of her ninth pregnancy she became weak and tremulous, speech was slurred, she had Argyll-Robertson pupils, a living child was born at full time. She died eight months later in a succession of fits. She suffered from general paralysis of the insane.

CASE XI: A patient, aged thirty-six, had three children. She had suffered from albuminuria during her fourth pregnancy. She became excited and confused at the third month, she did not improve after full time labour and died two years later of bronchopneumonia.

CASE XII: A patient, aged forty, had two children. At the sixth month of her third pregnancy she became confused; birth was premature. The patient died five weeks later of septicæmia.

CASE XIII: A patient, aged thirty-nine, had five children. At the eighth month of her sixth pregnancy she became confused. Full time labour occurred. She died a month later of pneumonia.

Discussion of Data.

Some points may be noted in the tables.

1. The greater proportion of patients is over thirty years of age. This may be related directly to the number of females of corresponding ages in the general population. On the other hand there is a definite rise in the insanity rate for women (single, married and widows) between the ages of twenty-five and thirty-five.

2. Morbid depression is the most common mental symptom during pregnancy.

3. Mental symptoms developing during the first half of pregnancy tend to clear up before parturition.

4. Among the certified patients symptoms developed more frequently during the later months of pregnancy.

5. In the voluntary (Broughton Hall) series symptoms developed nearly as often in the first as in the second half of pregnancy. This may be explained by the number of neurotics in whom there occurred an exacerbation of symptoms with the first signs of pregnancy. In these such factors as fear of pregnancy and an inability to tolerate discomfort probably play some part. The physical factor of exhaustion is of some importance in the later months and may explain the greater frequency of development of symptoms in the second half of pregnancy, in both recovered and chronic certified persons.

6. Previous attacks appear to be more common in the recovered than in the chronic symptoms. The tendency to recurrence of mental disorder may depend upon the relatively benign manic depressive diathesis.

In the confusional cases there may be noted the frequency of physical conditions.

Amongst the patients who died, five had organic disease which may have been aggravated by pregnancy. Five patients also were *multiparæ*, aged thirty-six or over. Of the thirteen patients who died, six showed mental symptoms before the development of any physical disease, so that exhaustion may have contributed towards the fatal termination. Nevertheless the mental symptoms occurred in the later months of pregnancy, in many cases so near full time that interference would hardly have been justifiable. There was a notable absence of previous attacks in the fatal group.

The chronic cases fall mainly into the deteriorating *dementia præcox* category to which I shall refer later.

One of the most difficult problems is to evaluate the mental symptoms related by the patient and to decide how far the alleged causes for depression are reasonable. The patient may express fears of parturition and possible complications, fears of added responsibilities and economic difficulties, fears connected with illegitimacy and fears regarding the future welfare of the child. One or other of these symptoms may prompt the patient or her relatives to raise the question of interference with pregnancy. My impression is that in most cases we have to deal with fears and worries which are symptomatic of the depression and that interference is rarely, if ever, justified on mental grounds alone. Not infrequently abortion is followed by intensification of symptoms.

A patient, aged forty, had five children. She had an abortion induced at the fourth month, as she feared the added responsibility. She became very worried and remorseful after, she considered that she had done a very serious thing, she became deeply depressed and retarded in speech and action. She recovered some months later.

A patient, aged thirty-six, had four children. She took pills to produce abortion with success, as she feared she could not look after another child and that all her family

would suffer. She became more worried and attempted to drown herself. She recovered about eighteen months after the miscarriage.

The mental condition of two patients who had abortion induced, became chronic.

A *primipara*, aged twenty-four, had induction at eight months on account of deep depression. She was better for two weeks, then attempted suicide by taking lysol, became frenzied, then dull and demented. Her condition was unchanged four years later.

A patient, aged thirty-three, had hyperemesis early in her second pregnancy. Then she starved herself and became cataleptic. Induction was performed at six months without improvement. She became demented and showed no change seven years later.

The neurotic woman, perhaps from childhood full of anxieties and given to hysterical display, may meet the burden of pregnancy with an exacerbation of her usual complaints.

One patient as a child was frail, self-conscious and always "misunderstood." At twenty-one she was depressed and brooding for three years after breaking off an engagement. She married later, but was unhappy—both she and her husband have tempers and get on each other's nerves. Two pregnancies occurred uneventfully. During the third pregnancy, at the age of thirty-four, she became more "nervy" and restless. She was worse after parturition, when she developed an hysterical paralysis of the right arm. Ever since then the right arm becomes weak when she feels excited. She has been in several hospitals with improvement, but relapses on returning home.

Particularly in the neurotics we should be alive to the possibility that interference may be sought ostensibly on medical, but actually on personal and economic grounds. This raises a question which is not strictly related to the present discussion, but which merits some notice. In a joint discussion by the Section of Obstetrics of the Royal Society of Medicine and the Medico-Legal Society, London, in 1927 (reported in *The British Medical Journal* of January 29, 1927), one legal authority agreed that "induction was not only justifiable, but a duty when pregnancy indicated grave danger to the mother's health, whether the result was likely to be permanent or not." Another legal authority went so far as to suggest a view which apparently is accepted in Germany, that "the fœtus is not yet an independent human being and that every woman by virtue of the right over her own body is entitled to decide whether it should become one." Obviously the introduction of any but purely medical considerations is fraught with undesirable and dangerous consequences, dangerous not only from a legal standpoint, but also ethically and socially.

To return to the insanities of pregnancy. The melancholic conditions with deep depression, apprehension, fears, remorse perhaps even with delusions, provided that they are of a definitely depressive nature, have a good prognosis, so long as nutrition and sleep are attended to and suicidal risks eliminated by careful observation. I see no grounds for interference in such cases. Confusional conditions are frequently associated with some physical condition. In fact the development of the confusion may be an indication of the severity of the primary physical, especially toxic, disorder. In such cases, should there be definite evidence that the patient is losing ground physically (loss of weight, rise in temperature and pulse rate, fall in blood pressure, increasing weakness), interference might be considered, provided that the operation, especially in the middle third of pregnancy, will not in itself introduce an additional stress. The question must be settled on physical rather than on mental grounds.

As regards chronicity of mental symptoms, I am unable from my records to point to any special predisposing factors. Although my numbers are small in the chronic group (twenty-six), it is, I think, significant that previous attacks are infrequent amongst those who fail to recover after a mental disorder of pregnancy. Moreover, the certified patients with conditions which become chronic, appear to develop their symptoms more in the second half of pregnancy when one would be less inclined to interfere.

Epidemic Encephalitis and Pregnancy.

Although not coming strictly within his practice, epidemic encephalitis and its sequelæ, on account of neurasthenic and depressive symptoms, occasionally come before the psychiatrist who may be asked whether the symptoms and signs are likely to be aggravated by the continuance of pregnancy. After a consideration of some two hundred cases and records Roques[1] concludes that women attacked by encephalitis during pregnancy are more likely to develop the Parkinsonian symptoms and that Parkinsonism is frequently aggravated by pregnancy. The pregnancy, on the other hand, pursues a normal course and the child is healthy. My own experience is limited to the following observations:

CASE I: A patient, aged twenty-four, a *primipara*, had acute encephalitis at the seventh month. Labour was induced, but the child was still-born. She was worse after induction and was "unconscious" for three months. The Parkinsonian syndrome gradually developed out of the acute stage.

CASE II: A patient, aged twenty-nine, a *primipara*, had acute febrile illness with diplopia at the age of twenty-five followed by weakness and fatigability. She became pregnant at the age of twenty-nine, weakness increased together with tremor and stiffness. Labour was normal and she suckled the child for six months. The Parkinsonian symptoms gradually became more intense.

CASE III: A *multipara*, aged thirty-nine, had acute encephalitis during the fifth pregnancy. Normal labour was followed by gradually increasing Parkinsonism. The child was healthy.

CASE IV: A *primipara*, aged twenty-two, had acute encephalitis at seventeen. Movements were already becoming slow when she married at twenty-one. Parkinsonism became much worse since the birth of a child.

CASE V: A *multipara*, aged twenty-four, had acute encephalitis at sixteen. About four months after the birth of her third child, when the patient was aged twenty-three, she developed the Parkinsonian symptoms. The symptoms have become much worse since her husband deserted her.

Having regard to the usual evolution of this disease and the frequency with which sequelæ may develop, there would appear to be little justification for interference in these cases, especially in *primiparæ*, unless physical exhaustion is severe and life is endangered. It is certainly unwise for a woman who has had encephalitis, to become married.

General Paralysis and Pregnancy.

Three of the fatal cases in my series occurred in general paralytics, one patient died during pregnancy, the others eight and twenty-one months after confinement. In all three symptoms had appeared before pregnancy. Another patient became worse during her third pregnancy, but lived for at least three years afterwards. In a disease which tends to follow a downward course, it is difficult to prove that pregnancy has much influence.

Possibility that Mental Disease may Develop Late in Pregnancy or After Parturition.

Interference may be suggested on account of a bad family history or because of a previous mental breakdown, either before or in association with pregnancy. As regards heredity, we lack any reliable evidence in deciding upon whom the taint is likely to fall. When a woman has been stable, even with a history of mental disorder in the family, one need not be apprehensive that pregnancy will precipitate an attack of mental disorder. Patients with a previous attack of mental disorder call for further consideration.

Among twenty-four patients with more than one attack of mental disorder, six gave a history of insanity in the family; eight had had attacks before the first pregnancy; eight had had attacks independent of child-bearing; and ten had had more than one attack associated with child-bearing.

In the consideration of the possibility of a recurrence of mental disorder we should discriminate between those cases in which a previous attack of insanity at the puerperium was associated with severe physical stress, such as hæmorrhage and sepsis, and those in which the physical condition was relatively healthy. Bourne[2] in a review of sixty-one cases of puerperal insanity concluded that if a patient has had previous attacks or has a collateral history of insanity, another pregnancy is liable to precipitate a recurrence of mental disorder, but should the insanity have been associated with such conditions as puerperal sepsis or eclampsia, the insanity is not likely to recur. In my own records there is no special reference to physical morbidity in earlier attacks of mental disorder, indicating that we have to deal with a diathesis which is relatively little influenced by external factors. Nevertheless there should be a fair interval before a patient recovered from insanity of child-bearing becomes pregnant again. She should at least have regained good physical health.

The data in connexion with 320 cases of insanity occurring during the puerperium are set out in Table III. My figures do not offer much assistance in estimating the probability of the development of a psychosis in association with child-bearing. Nevertheless I venture to suggest some factors which might be taken into consideration. In the first place I regard heredity as of minor importance. The personal history includes the circumstances and nature of any previous mental disorder and of any gradual change in disposition such as frequently occurs in paranoid states (*dementia præcox*, paraphrenia and paranoia), seclusiveness, moodiness, suspiciousness, irritability and emotional instability would naturally induce one to guard the patient from any undue stress, whether physical or psychological. It must be admitted that *dementia præcox* not infrequently appears to develop in association with child-bearing, but as yet our knowledge of morbid traits in the personality of such patients before the occurrence of definite insanity is too scanty to guide us in preventive measures.

TABLE III.

Showing Particulars of 320 Cases of Mental Disorder occurring in the Puerperium and in the Lactational Period.

Observation.	Recovered.		Died.	Condition Chronic.	
	Certified.	Voluntary.	Certified.	Certified.	Voluntary.
Age (in Years):					
Up to 20	10	1	—	2	—
20 to 25	32	9	3	6	5
25 to 30	44	16	14	9	7
30 to 35	32	16	16	14	5
35 to 40	22	19	10	13	3
Over 40	5	3	—	4	—
TOTAL	145	64	43	48	20
According to Number of Pregnancies.					
Number of Pregnancies:					
1	52	14	10	8	7
2	26	18	7	11	5
3	21	14	9	5	3
4	16	8	4	7	3
Over 4	30	10	13	17	2
Previous Attacks independent of Child-bearing.					
Number	4	7	2	2	2
Previous Attacks in association with Child-bearing.					
Number	9	11	5	10	2
Types of Mental Disorder.					
Condition:					
Confusion	57	6	30	—	1
Melancholia	62	31	10	3	1
Mania	18	—	3	2	—
Melancholia-Mania ..	8	4	—	1	—
Neurasthenia ..	—	16	—	—	5
Anxiety state ..	—	1	—	—	—
Hysteria	—	6	—	—	4
Schizophrenia[1] ..	—	—	—	42	7

[1] This diagnosis is applied to the dementing patients.

The following case illustrates the gradual development of psychosis (*dementia præcox*).

The patient was married at twenty-four. Two years later she began to quarrel with her neighbours, one of whom threatened damages for libel. Her first child was born without any definite change in her mental condition Later she became more suspicious of friends and neighbours. At the age of thirty-two she became definitely worse, neglecting her house and making extravagant demands. Her second pregnancy occurred at the age of thirty-five and three months after parturition she was admitted to a mental hospital, restless, incoherent, expressing a number of disconnected delusions. Mental deterioration progressed for at least four years.

In this case pregnancy was obviously undesirable, yet in all probability did not influence the cause of the psychosis.

Although in the chronic certified cases in my series ten out of fifty-eight had a history of previous attacks in association with child-bearing, in many of these the case records indicate exacerbations in a slowly developing psychosis of a dementing type rather than attacks with recovery. The following history is an example.

> Following the birth of her first child, a woman, aged twenty-three, had an attack of excitement. At the age of twenty-five she had another attack of puerperal mania. At twenty-seven she was readmitted to the mental hospital "deluded and hallucinated"; this attack or exacerbation was independent of child-bearing. She improved enough to be discharged. At the age of twenty-nine, when seven months pregnant with her third child, she was readmitted in a state of excitement. There was some improvement after parturition at full time. Relapses occurred at the ages of thirty-one and thirty-four, independently of child-bearing. The records indicate a gradual increase in the severity of her mental symptoms, particularly the delusional element. After the lapse of over three years she has not yet improved sufficiently to be discharged.

When the history suggests that previous attacks have been clear-cut depressions and excitements, that is, that the patient is manic depressive, the chances are that they will recur with or independently of child-bearing, with recovery.

One type of patient who appears to involve a mental risk, is the multiparous woman nearing the age of forty who has had a previous attack. Yet even here, unless physical exhaustion is severe, one would hesitate to advise interference.

THE CHANCES OF HEREDITARY TAINT.

There is perhaps no more debatable subject in psychiatry than the inheritance of mental disorders. While there is a general agreement that an hereditary factor is present in many cases of insanity and mental deficiency, we are unable to form the vaguest estimate of the degree of probability that any one of the offspring will suffer a mental breakdown. While the heredity factor is strongest in the manic depressive psychosis, even here the taint does not affect all members of the younger generation in a family with a so-called "bad" heredity. Incidentally the swing of the pendulum is away from heredity and towards environmental factors and greater attention is being paid to parental example than to the transmission of morbid genes. Though I am not prepared to back my opinion by statistics, I maintain that interference with pregnancy is justifiable only in the rarest instances on any hereditary or eugenic grounds. Tredgold[3] reports that of fourteen children born of mothers who were insane during gestation and in whom there appeared to be no hereditary predisposition, ten were physically and mentally well for periods up to fifteen years of age, while of twenty-four children born of mothers insane during gestation and with hereditary psychopathic history, only three remained alive and well within a similar period, while the rest had died in infancy. The influence of an insane father is probably similar.

Only where both parents are mentally defective is there almost a certainty that all the offspring will be defective; otherwise mental deficiency tends to be sporadic and may be transmitted through individuals who are only slightly, if at all, subnormal. A special variety of mental deficiency, mongolism, is quite irregular in its familial incidence, but tends to occur when the mother of a large family is nearing the end of the reproductive period. In such cases later pregnancies which are unlikely to occur, will probably result in defective children.

From the hereditary and eugenic point of view, if there is any interference with reproduction, it should be through contraception, segregation or sterilization rather than through abortion. This is admittedly controversial and I make the suggestion more in a provocative than in a constructive spirit.

The induction of abortion may be considered in the paretic woman on eugenic grounds. I have not been able to obtain any information as to the progress of children born after the mother has developed signs of general paralysis. Kraepelin[4] states that about 45% of children born within ten years before either parent has become paretic display such conditions as imbecility, neurosis and organic nervous disease. In most instances Nature settles the matter by refusing to allow the paretic woman to produce a living child or by terminating its existence in infancy.

CONCLUSION.

There is a significant omission of any mention of interference with pregnancy for mental reasons in English text books on psychiatry. Kraepelin[4] writes:

> Parturition in itself as a rule exerts no favourable influence upon the course of mental disorder. In the same connexion I have never been able to substantiate a recovery after the induction of abortion or of premature labour in the few cases which have come before my notice.

Kraepelin also observed that parturition and still more abortion appear more often as precipitants of mental disorder rather than alleviants.

In a discussion in the Section of Obstetrics and Gynæcology of the British Medical Association at Nottingham in 1926 Eden[5] suggested recovery from a previous attack of puerperal insanity or "borderline" symptoms in a patient with a bad family history as indications for interference. Cole,[6] speaking for the psychiatrists, said:

> We doctors have no right to end a pregnancy before the child is viable, except for few reasons which I believe still to be limited to the ill health of the mother jeopardizing her life.

The president of the Medico-Psychologist Association of Great Britain, Dr. J. R. Lord,[7] suggested that the grounds for inducing abortion in mental disorders are: (i) To preserve life, (ii) to alleviate or cure serious physical or mental illness or (iii) to prevent serious ill health, physical or mental, whether permanent or temporary.

After the discussion on his paper he said:

If the views on this subject expressed by various speakers are representative of the views of the association, I think it might go forth that in the opinion of the association the weight of evidence told definitely against the growing practice of inducing abortion for the prevention (*id est* occurrence or recurrence) of mental disorders.

At a combined meeting of the American Medical Association Singer[8] concluded that interference with pregnancy is rarely, if ever, justifiable on mental grounds alone. In the manic depressive psychosis and in *dementia præcox* and paranoid states he had never had occasion to advise or consider termination.

May I suggest that the sections represented here this evening give forth an authoritative opinion on this subject?

ACKNOWLEDGEMENTS.

I wish to thank Dr. Wallace, of Callan Park, and Dr. Evan Jones, of Broughton Hall, for access to case records. A special debt is also due to Dr. Minogue for lending me some valuable notes on a number of cases of the psychoses of child-bearing which came under his observation.

REFERENCES.

(1) F. Roques: "Epidemic Encephalitis in Association with Pregnancy, Labour, and Puerperium: Review and Report of 21 Cases," *Journal of Obstetrics and Gynæcology of the British Empire*, Volume XXXV, 1928, page 1.
(2) A. W. Bourne: "Ætiology and Prognosis of Puerperal Insanity," *Journal of Obstetrics and Gynæcology of the British Empire*, New Series XXXI, 1924, page 251.
(3) A. F. Tredgold: "Mental Deficiency," 1929.
(4) Kraepelin: "Psychiatrie," 1920.
(5) T. W. Eden: "The Indications for Induction of Abortion," *The British Medical Journal*, Volume II, August 7, 1926, page 237.
(6) R. H. Cole: "The Indications for Induction of Abortion," *The British Medical Journal*, Volume II, August 7, 1926, page 244.
(7) J. R. Lord: "Induction of Abortion in Treatment and Prophylaxis of Mental Disorder," *Journal of Mental Science*, Volume LXXIII, July, 1927, page 390.
(8) H. D. Singer: "Mental Disease and Induction of Abortion," *Journal of the American Medical Association*, Volume XCI, December 29, 1928, page 2042.

BREAST FEEDING.[1]

By GUY SPRINGTHORPE, M.B. (Melbourne), M.R.C.P. (London),
Melbourne.

HEALTH, before and after the infant's birth, is essential for natural feeding; and any consideration of this subject must deal with both these periods.

PRENATAL CARE OF THE MOTHER.

Several basic factors determine the health of the mother during pregnancy.

Diet.

For food requirements to be met, both the quality and the quantity of the diet must be adequate. As regards quality the same principles of balancing the proteins, fats, carbohydrates, salts, vitamins and water apply as in other conditions of health. Much recent work has been done in relation to vitamins and a few points may be mentioned. An admirable description will be found in "Food, Health and Vitamins," 1929 edition, by Plimmer. Vitamin *B* is most likely to be deficient in present day dietaries. It occurs mainly in cereal germs and in yeast and to a less extent in nuts and eggs. Experiments have shown that for proper lactation in rats three to five times the usual amount is required. Vitamin *F* has a similar distribution and is also in lean meat. Vitamin *A* is present in animal fats, if the animals have been naturally fed, and especially fish oils, and in eggs, butter and green vegetables to a less extent. Spinach is the best vegetable. Vitamin *D* has the same distribution in foodstuffs as vitamin *A*, except that it is not present in green vegetables. It can be made artificially by irradiating ergosterol. Increased amounts of both vitamin *A* and vitamin *D* have been shown to be necessary for lactation in experimental animals. Vitamin *C* is most plentiful in citrus fruits and to a less extent is present in raw greens and fruit. It is destroyed by heating in contact with air and particularly so if alkali is added, as is usually done in cooking vegetables.

The other qualitative factors mentioned are, of course, of equal importance. The increased requirements of calcium, iron and iodine during pregnancy should not be overlooked. In the latter months the protein intake may need decreasing.

The quantity of food necessary to meet caloric demands varies considerably with different individuals and each case requires separate consideration. Though general underfeeding may occur for economic reasons, overfeeding, especially with starchy foods, is not uncommon. As a rule three meals daily are sufficient. When not acting naturally, the bowels should be regulated, if not by attention to diet and exercise, then with suitable laxatives.

General Hygiene.

The happy mean between sufficient exercise and rest must be adjusted to each individual. Daily walks, without causing over-fatigue, are advisable. Regularity is the keynote. In addition, sunlight and fresh, moving air are essential, not only for their general tonic effect, but in maintaining freedom from infections throughout pregnancy. The mental hygiene of the expectant mother is of equal importance. Over-anxiety and worry produce ill health. Previous unsuccessful pregnancies or failure to feed naturally or similar experiences on the part of the patient's own mother or friends may unjustifiably cause a lack of confidence and this becomes the prime factor in subsequent failure to feed at the breast. Helpful cooperation and a healthy mental outlook will be more readily achieved if at some time before the confinement the prospective mother has been educated in the essential details of mothercraft and natural feeding.

[1] The second of a series of post-graduate lectures arranged by the Victorian Branch of the British Medical Association and delivered on May 22, 1930.

Care of the Breasts.

Examination should be made for any abnormality of the nipples. If flat, these should during the later months be gently stimulated and brought out. Vaseline is a sufficient lubricant. Excessive handling or use of spirit for hardening may cause soreness or cracking. Complete inversion, though rarely met with, often does not respond to treatment. If the breasts become heavy, support may be needed, without any over-pressure.

Finally, for the proper care of the mother regular medical supervision and correct obstetrical procedure are further requirements.

ESTABLISHMENT AND MAINTENANCE OF BREAST FEEDING.

When the mother has been brought up to and through her confinement with proper care, the institution of breast feeding must be undertaken. The first few weeks of life are amongst the most important for the child's future welfare, as at this time it is usually determined whether or not the supply of natural food will be adequate. It should be remembered that not only is breast milk of importance for proper nourishment, but also as a protection against infection or in raising resistance should infection occur. How soon after delivery should the child be put to the breast? According to the degree of exhaustion of the mother this period may be from six to twenty-four hours. In the interval, apart from the usual care of the infant, small quantities of lukewarm boiled water may be given, with the addition of sugar if there is any evidence of "inanition fever." When placing the infant at the breast, the nipple should project directly into the mouth over the tongue and be well grasped. The nostrils should be free. This is best achieved if the mother lies on the side from which the infant nurses, the head pillowed on her arm and her opposite hand holding the upper part of the breast away from the baby's mouth. For twenty-four hours feeding at intervals of six hours is sufficient, leaving the baby two to five minutes at each breast. This suffices to empty the breasts of colostrum. Prolonged sucking may make the nipples sore and upset the baby. Thereafter most normal babies progress properly if fed every four hours in the day time, that is, five feedings, with an eight-hour rest at night, when the baby should always sleep alone. With these intervals it is safest at first to give both breasts at each feeding until full establishment occurs, as the chief stimulants to lactation are regular sucking and complete emptying of the breasts. On the second day two to five ounces are usually obtained in *multiparæ*, less in *primiparæ*. The infant loses some weight—eight to twelve ounces—in the first few days, mostly from excretion. After the third day a steady increase in the supply of breast milk should take place, reaching the optimum in from one to two weeks. The best nutritional results will be obtained if toward the end of the second week the infant is getting about fifteen ounces per day. During this time, if there is any doubt as to the infant's progression, it is wise to do daily test feedings to ascertain progress accurately and to record both the infant's weight and the breast milk secretion on a suitable chart, of the type shown in Diagram II.

When secretion has been adequately established, it is usually found that the amount of milk obtained at the first breast is sufficient for each feeding; the use of the second breast can be discontinued and the infant finally fed every four hours at alternate breasts only, right through lactation, until weaning is commenced at somewhere between the sixth to the ninth month of age. The actual time at the breast will vary from ten to twenty minutes as a rule.

Rapid Rate of Increase and Excess.

Not infrequently when the breasts fill on the third or fourth day there is pain and discomfort and the breasts will need support in a loose sling. If more is present than the infant needs, a single dose of saline aperient may be given and the fluid intake of the mother diminished for a day. For the discomfort a sedative such as aspirin, phenacetin and caffein can be used and occasionally, if the breasts are very tense, "Plastine." Drastic purgation, tight binding of the breasts, over use of coffee and excessive fluid restriction should not be permitted. These practices are often the cause of commencing failure in a supply that would otherwise have progressed naturally. Normally the supply tends to become adjusted to the infant's demands, if correct mothercraft and feeding methods are employed. If, however, feeding is irregular and too frequent, overfeeding can result. In such circumstances the infant will become more and more irritable, crying a great deal. The weight will at first show excessive gains. Finally the baby's digestion will be upset and vomiting, colic and frequent motions result. In hot weather over-feeding at the breast can occur, even if alternate breasts are given at four-hourly intervals, unless extra water is given to satisfy the infant's fluid requirements, which are from two and a half to three ounces per pound body weight per day. In satisfying his thirst he may more than satisfy hunger.

Slow Rate of Increase.

In a small minority of cases, following normal confinement, it is found that the breast milk does not increase appreciably in the first weeks. The reasons for this are usually psychological and it should not be taken as an indication that establishment will not occur. Regular suction and complete emptying of the breasts should be persevered with.

In these cases the loss of more than about a pound weight should be prevented by temporary complementary feeding, usually begun about the fifth day. Complementary feeding means the giving of additional food after the breast. Supplementary feeding is the substitution of an artificial feeding for a breast feeding. This should never be done during institution of natural feeding, as the interval between breast stimulation will be too prolonged.

The inanition resulting from greater weight loss than about one pound causes decreased sucking power and lethargy or irritability in the infant. The amount of complementary feeding required can be judged only by daily test feedings. Less than the calculated requirement should be given so that the infant will go readily to the breast and over-feeding be avoided. A suitable mixture is the split-protein mixture C.1 given in the "Guide to Infant Feeding," without any added fat and at first diluted with equal parts of water. The caloric value of this mixture so diluted is seven calories per ounce. Lactose is the safest sugar to add, as sugars with a sweet flavour may give the infant a distaste for mother's milk. For this reason sweetened condensed milk is least suitable.

In certain circumstances, for example, after Cæsarean section or eclampsia, it may not be possible to put the child to the breast for some days owing to the condition of the mother. After about twenty-four hours it will be necessary to give the baby food from another source. The best would be small feedings, two to three ounces, of breast milk obtained from another mother. As such is not usually obtainable here, artificial feeding will be required. The C.1 mixture can be used in the same way as previously mentioned. If this process has to be continued for more than a few days, the breast milk supply should be stimulated by manual expression and perhaps other restorative methods mentioned later. This is, however, seldom necessary, as these cases usually progress favourably once the infant is put to the breast and natural suction is provided. If, in addition, the baby is premature, establishment may be more difficult and some of the methods given by Dr. Campbell[1] may be necessary. As the feeding of premature babies is largely a matter of providing them with breast milk, every effort should be made to insure an adequate supply.

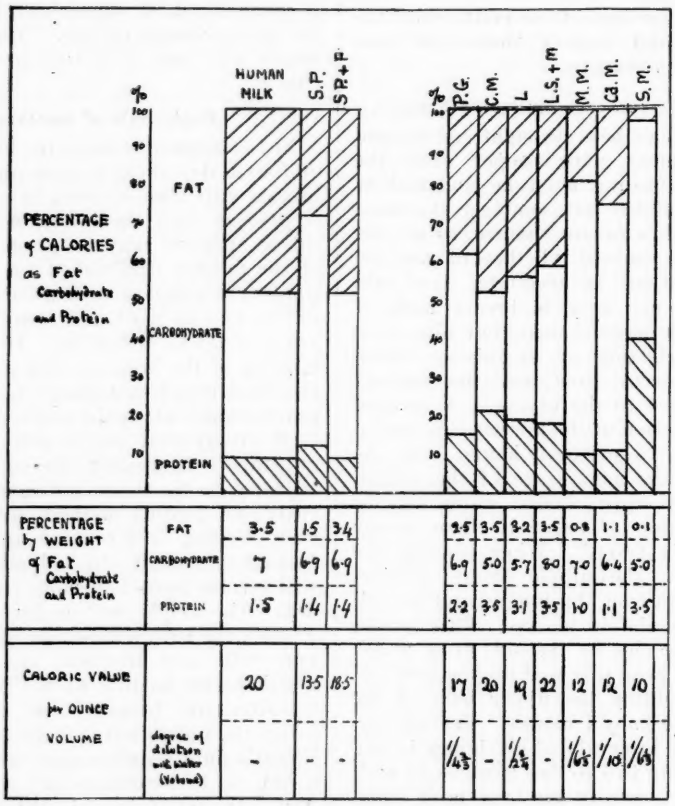

DIAGRAM I.

Showing composition and caloric value of some complementary and artificial feedings. S.P. = Split protein mixture without added fat. S.P. + F. = Split protein mixture with added fat or "Humanized Milk Number 1." P.G. = "Prescription Glaxo." C.M. = Cow's milk. L. = "Lactogen." L.S. + M. = "Lactone Syrup" with whole milk (one in twenty). M.M. = Malted milk (Nestlé's). Cd.M. = Condensed milk (Nestlé's). S.M. = Separated milk (powder, Nestlé's). The split protein mixture is given in Sir Truby King's book, "Feeding and Care of Baby," and also, as mixture C.1, in the "Guide to Infant Feeding" published by the Victorian Health Department. "Lactone Syrup" contains lactic acid, water and corn syrup; by adding a drachm to the pint of whole milk, a feeding is produced similar in acidity and composition to the acid feeding as originally described by Marriott.

Interval Between Feedings.

Although the four-hourly interval is usually suitable after the second day, some babies, especially those of rather low birth weight, take less than others at a feeding and may require the breast every three and a half or every three hours. There is no physiological reason against this practice, as the stomach is normally empty after a breast feeding in from one and a half to two hours. After some weeks four-hourly intervals can generally be substituted. Occasionally one breast feed through the night is required during establishment and can be discontinued later.

Complementary Feeding and Nutrition.

In any case where the nutrition of the infant is not progressing normally, the only way of knowing the amount of food being taken is to do a day's test feedings. This is done by weighing the baby before and after feeding on an accurate scale of the Chatillon or Avery variety, reliable to within a quarter of an ounce. The ordinary spring balance is not sufficiently accurate. It is necessary to weigh before and after each feeding throughout the day, as normally different quantities are taken at different times, often nearly twice as much in the first two as in the last two feedings each day. For this reason a single estimation is misleading. The normal infant up to the end of the third month requires about fifty

[1] See the first lecture published in the issue of July 26, 1930.

calories per pound body weight per day, on an average. In any one case the amount will vary slightly with activity, climate and temperament. After the third month the requirement diminishes to about forty-four calories per pound at six months and forty-two at nine months. As breast milk contains approximately twenty calories per ounce, it is easy to calculate how much infants of different ages and expected weights should receive. The average expected weight of Victorian babies at birth is seven and a half pounds or a little more, rather more than doubling in six months, with a rate of progress of about six ounces per week and trebling at a year. A variation of 15% above or below the average, for any baby may be considered within normal limits. This is important to remember, as a too rigid adherence to average figures as a guide to requirements is not infrequently seen.

If, after test feedings, it is clear that the infant requires additional nourishment, complementary feedings will need to be given. For this some modification of cow's milk will be used and although this is not the place to go into details of artificial feeding, some facts concerned in the balancing and composition of such feedings may be of interest.

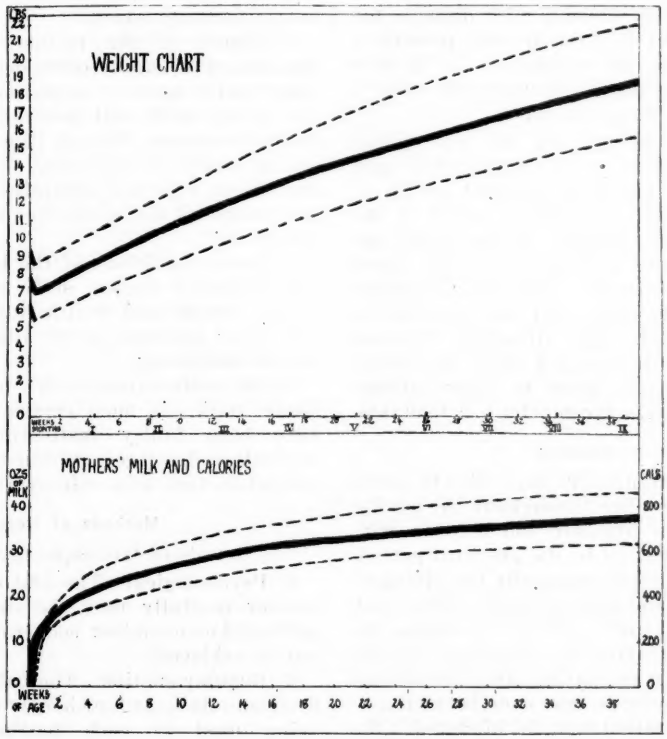

DIAGRAM II.

In every hundred calories supplied in the form of human milk, approximately nine will be provided by the protein content, forty-three by the carbohydrate and forty-eight by the fat. This caloric percentage method of comparing the food value of different complementary feedings is in some ways preferable to the gravimetric method which has been most commonly adopted in the past. Using percentages by weight, there is a tendency to consider each percentage separately, overlooking the fact that the proportion of the other constituents present has also to be taken into account when balancing a feeding. For example, compare the total carbohydrate in malted milk and the "Lactone Syrup" mixture shown in Diagram I. The percentage by weight being 7% and 8% respectively, it might be thought that an infant receiving a certain number of calories as malted milk would be taking less carbohydrate than if fed a similar number of calories as the "Lactone Syrup" mixture. Referring to the percentage calories, it will be seen that almost twice as much will be given, owing to the lesser proportion of protein and fat in the malted milk. Furthermore, when only the gravimetric method is used, the addition of further quantities of one constituent does not appear to alter the amount of the other constituents that the infant will receive. If the split protein mixture without added fat and with added fat be compared in percentage calories, it is seen that the increase of fat will decrease the total quantity of both the protein and carbohydrate in any given number of calories offered to the infant.

Though the addition of water will not affect the ratio of protein, carbohydrate and fat in a feeding, it will, of course, alter the caloric value per ounce. Consequently, to utilize the caloric percentage method in comparing and balancing artificial mixtures, it will be necessary to know the degrees of dilution employed.

In cow's milk the caloric percentages are different to those of human milk. The biochemical and other properties of the constituents of cow's milk and of the carbohydrate and fats usually added to milk mixtures are also dissimilar. Both these factors have to be considered in modifying cow's milk feedings. The aim should be to produce a mixture as nearly as possible resembling breast milk in digestive and nutritive properties. In Diagram I several different modifications have been shown for purposes of comparison. Basic factors, such as composition and energy value only, are given. The equally important questions of digestibility, vitamin and mineral content, methods of measuring and making, will be dealt with in other lectures.

At the Tweddle Hospital complementary feeding is carried out on the lines adopted by Sir Truby King. The percentage of calories in protein is similar to that in human milk, 9% to 12%, and the

fat is gradually increased by the addition of Kariol emulsion, which contains homogenized oils and fats. This is given separately by spoon before the milk mixture. In balancing feedings by the use of this emulsion it should be remembered that it also contains 40% added carbohydrate. Well babies can frequently be worked up to full amounts, 45% to 48% of calories as fat, but with infants suffering from any digestive upset, less than half this quantity will be advisable at first and subsequent increases must be cautiously made. This is particularly the case when excessive amounts of butter fat have previousy been given, causing the infant to develop a fat intolerance. In considering this difficult question of fat digestion, it should be noted that not only is the fat of cow's milk difficult for the infant to digest, but that the amount present is liable to very considerable variation. It is also found that in mixtures with a low protein ratio a higher fat is tolerated than otherwise.

Just as important as meeting the nutritional requirements, is attention to the mothercraft and hygiene of the baby. The most detailed advice as to feeding mixtures will be without avail if the mother or nurse is not skilled in the numerous details which constitute mothercraft. The most common errors in this respect, apart from irregular feeding, are excessive handling and over-stimulation of the baby. The seeds that ultimately blossom into the nervous child, the naughty child, the undernourished child, are often sown in early infancy by devoted, but otherwise incompetent, attendants.

MATERNAL HYGIENE.

In addition to the infant, care must also be given to the health of the mother throughout the period of lactation. The same hygienic and dietetic principles should be followed as in the prenatal period. Over-eating is to be avoided, especially the giving of large amounts of milk and starchy foods. These may increase the amount of milk, perhaps to excess, but as often as not by overtaxing the digestion, increasing any tendency to constipation and interfering with the mother's capacity to take exercise owing to increasing weight, lactation will be hindered. So-called lactogogues should also be avoided. A glass of water before each breast feeding is advisable to replace fluid loss. The nipples also should be washed carefully before and after feeding.

RESTORATION OF BREAST MILK, IF FAILING.

In practice it not infrequently happens that the supply of breast milk which may perhaps never have been adequate, commences to fail and the infant to lose weight progressively. The causes underlying this are usually the negation of the correct methods of handling. They may be briefly summarized:

1. Faulty methods during institution and maintenance. Under this heading are: Lack of confidence or worry on the part of the mother and her attendants; irregular feeding; too frequent and overfeeding, ultimately causing digestive upset in the baby who may be taken off the breast or go off, and the supply diminish as a result; night feeding, often through sleeping with the mother; lack of perseverance and too ready or wrong use of complementary feeding; supplementary feeding; the use of dummies with sugar, honey *et cetera* and other forms of defective mothercraft, especially over-stimulation of the infant; use of purgatives by the mother on the third or fourth day and tightly binding the breasts.

2. Non-recognition that the breast milk is beginning to decrease. The first sign of decrease may be lack of gain or weight loss in the infant, with resultant irritability and loss of sleep or lethargy, diminished suction at the breast, air swallowing, digestive upset and ultimate refusal to take the breast in many cases.

3. Illness of the mother. In acute illnesses diminution of supply often occurs. If this is recognized and temporary complementary feeding given, the breast milk will generally increase when the mother recovers. Chronic illness must be considered on the merits of each case, open tuberculous infection being aways a contraindication. Faulty diet and overwork too soon after confinement may be a factor.

4. Local conditions of the breast.

5. Infantile causes, such as anatomical defects of the tongue and mouth, infections of the mouth and nasal passages, acute illness, prematurity and mental deficiency.

Of the main causes which underlie diminution of breast milk the most common, in our experience, have been faulty institution, incorrect feeding methods and non-recognition of commencing failure, several factors as a rule operating together.

Methods of Restoration.

The details of technique fall into six groups:

1. Psychological. The first step is to reassure the mother tactfully that she can nurture her baby; without her confident cooperation good results will not be achieved.

2. Regular suction. The baby is put to the breast five times daily at four-hourly intervals, both breasts being used at each feeding. In very undernourished infants three-hourly intervals are occasionally used. The time taken will depend on the rate of emptying. When there is little or no secretion three to five minutes suffice. Prolonged suckling at an empty breast is to be avoided.

3. Complete emptying. After nursing, any residue is expressed by hand. In so doing it should be remembered that the ampullæ are placed somewhat deeply and to force the milk from them into the lacteals, the fingers and thumb should be pushed into the breast substance just outside the areolar margin and brought firmly together. Mothers are taught to perform this themselves.

4. Stimulation and massage. This is done twice daily after the 10 a.m. and 6 p.m. feedings, the breasts being empty. Each breast is separately douched with hot and cold water, finishing with cold. Following this a series of massage movements

are gone through, the details of which will be shown this evening in the demonstration. The time taken is approximately ten to fifteen minutes. Lactogogues, so called, are not used.

5. Suitable complementary feeding. This is especially important in infants considerably below their expected weight who are too weak to suck vigorously and must first be built up with a suitable artificial food. If the baby is more nearly normal, it is well to underfeed sightly, so that he will go more readily to the breast. Milk expressed after the previous breast feed is used as part of the complementary feeding.

6. Hygiene of mother and baby. Particular attention is directed to the general health of the mother, consisting chiefly in the adjustment of diet, rest and exercise. As a rule exercise consists of three or four half-hour walks every day, with a complete rest of about an hour and a quarter in the afternoon and half an hour in the morning.

Some Difficulties in Restoration.

Maternal Difficulties.

General Difficulties. General difficulties are usually psychological. The mother is content to sit back and allow other people to do the work, firmly convinced in her own mind that they might just as well save themselves the trouble. Another lacks that keen desire which is so necessary. Then we have the mother whose desire amounts to an obsession, with consequent worry, if the supply does not show a daily increase, which leads to a diminished quantity and an altered quality.

Local Difficulties. Nipples play an important part. If they are very small, baby gets annoyed, mouthing round and crying. In such circumstances patience is generally rewarded in the long run. The nurse or mother taking the breast and putting it into the baby's mouth, he closes on the mouthful and by munching or sucking encourages the flow, at the same time drawing the nipple out. Inverted nipples are a difficulty, as few babies are strong enough to suck consistently through a nipple shield. In these cases good results are obtained by first applying the breast pump to draw the nipple out, immediately placing the same in baby's mouth before it has an opportunity to slip back. Muscular breasts are often a hindrance—they usually go with small nipples and it is almost impossible for baby to get a grip.

Infantile Difficulties.

General Difficulties. As regards the baby, the commonest difficulty is screaming when put to the breast. When this happens one has to find the cause which usually proves to be a decided deficiency or total loss of breast milk. With encouragement, commencing, say, with two or three minutes on each breast (residue, if any, expressed and given by bottle along with artificial feeding), the baby's aversion is overcome as his nutrition improves and the quantity of breast milk increases. The drowsy baby is not uncommon; drowsiness is usually due to weakness or bad handling in the first few days of life. By building up the child's strength and using every means allowable, such as washing the face with a cold cloth, chucking under the chin *et cetera* to keep the child awake and feeding regularly, the trouble is usually overcome. At times the baby will go eagerly to one breast and scream, fight and struggle if changed over to the other. In a case of this description the plan adopted is to keep the baby reclining on the same side and draw gently across to the other breast, when usually no difficulty is experienced. Another type is the baby whose mother has talked and played with him whilst nursing. Absolute quietness and solitude during the time of nursing is necessary in such a case. It is often found advisable to cover the eyes completely.

Local Difficulties. Infections of the mouth may temporarily cause the baby to refuse the breast. During this time the supply can be kept going by expression. Colds in the nose are also a temporary difficulty if breathing is blocked. None of our babies has had more serious anatomical defects of the mouth, such as hare lip or cleft palate, in which maintenance by expression might be attempted.

A short tongue or tongue tie is sometimes a cause of failure. When suction is poor, the mouth is always examined; if the baby is tongue-tied, this is easily rectified.

With skilled assistance restoration can be undertaken at home, but better results are obtained at the mothercraft training schools. Residence of less than ten days does not usually give restorative methods a proper chance. Two to three weeks are preferable. By this time considerable improvement can be expected. Morover, the mother understands and is able to carry on the process after discharge, when further improvement often takes place.

Illustrative Case of Restoration.

The patients referred to have been at the Tweddle Hospital and School of Mothercraft under Matron Moreland.

Mrs. C. and baby, aged four weeks. The birth weight was seven pounds twelve ounces. The weight on admission was six pounds nine ounces.

Normal confinement had occurred in a private hospital. On the third day the patient was given salts and the breasts were bound up because she had "too much milk." The supply decreased and later the baby refused the breast. Feeding was irregular and no complementary feedings were given. The mother was anxious to feed her baby naturally.

The progress of restoration was as follows. The following ounces of breast milk were given every day. The figures in parentheses give the amount expressed: 2¼ (1), 3¾ (2¾), 8¾ (2), 13½ (2¾), 14 (2¾), 17¾ (1½), 20½ (1¾); 16% total expressed. Feedings were given every three hours, six feedings in twenty four hours. For the first few days great difficulty was experienced in getting the baby to take the breast. On discharge it was taking the breast well and having no complementary feeding. Its weight was seven pounds fourteen and a half ounces. Subsequently it progressed normally and was breast fed.

Analysis of Fifty Consecutive Cases.

In the accompanying two tables, taken from a paper read at the 1929 Australasian Medical Congress, is shown an analysis of fifty consecutive cases.

TABLE I.
Showing Average Results.

Number of Cases.	Age of Baby in Weeks.	Percentage of Expected Weight of Baby on Admission.	Percentage of Caloric Requirement as Breast Milk on Admission.	Days in Residence.	Percentage of Caloric Requirement as Breast Milk on Discharge.	Percentage Rate of Increase in Breast Milk per Day.	Percentage of Total Breast Milk Expressed.
50	8 [27 babies under 7 weeks]	81	44	15	72	1·8	18

TABLE II.
Showing Subdivision according to Rate of Increase.

Number of Cases.	Age of Baby in Weeks.	Percentage of Expected Weight of Baby on Admission.	Percentage of Caloric Requirement as Breast Milk on Admission.	Days in Residence.	Percentage of Caloric Requirement as Breast Milk on Discharge.	Percentage Rate of Increase in Breast Milk per Day.	Percentage of Total Breast Milk Expressed.
(Group I.) 9	7	83	55	16	58	0·2	3·2
(Group II.) 19	8	82	43	18	70	1·5	21
(Group III.) 21	8	80	40	12	80	3·5	18·5

Table I shows the averages for the fifty cases. To afford a means of comparison between the amounts of breast milk on admission and on discharge, the percentage of the baby's total caloric requirements provided in breast milk were calculated in each case. The degree underweight on admission and the percentage of breast milk got by manual expression are also shown. A further subdivision according to different rates of increase as a result of treatment is given in Table II. Group I, 18%, was not successful; Group II was moderately successful; and those in Group III on the average doubled their supply in twelve days. Ten of the series had less than one-twentieth of the infant's requirements in breast milk on admission. Fourteen were discharged with from 90% to 100% of total breast milk required. The average residence is only fifteen days and in many instances further improvement has taken place after returning home. From observation of the mothers and babies it is apparent that by very simple means worth while results can be obtained.

BIBLIOGRAPHY.

Plimmer: "Food, Health and Vitamins," 1929.
F. Truby King: "Feeding and Care of Baby."
F. Truby King: "The Expectant Mother and Baby's First Month."
Victorian Health Department: "Guide to Infant Feeding."
Grulee: "Physiology and Care of the New Born."
Grover Powers: "Caloric Comparison of Milk Mixtures," *American Journal of Children's Diseases*, 1925.
Guy Springthorpe: "The Restoration of Breast Milk Feeding," Australasian Medical Congress (British Medical Association), Transactions of Third Session, 1929.

Reports of Cases.

ACUTE THYREOIDITIS IN THE PUERPERIUM.

By A. M. WATKINS, M.B., B.S.,
Roseville, New South Wales.

ON January 15, 1930, I was summoned to Mrs. A.B., aged twenty-one years, who complained of very severe pain over the forehead and general muscular pains and weakness. This patient was over eight months pregnant in her first pregnancy and her temperature was 38·3° C. (101° F.) and pulse 90 per minute. There was present a right-sided muco-purulent nasal discharge with extreme tenderness over the right frontal sinus. I applied a blister in the temporal area and ordered hot menthol inhalations every four hours. Within twenty-four hours the condition subsided completely.

On January 31, 1930, I was called again to her. Labour was far advanced and I delivered her of a full-time, healthy fœtus. On February 3, 1930, there was a rise in temperature to 39·4° C. (103° F.) and there were severe pains at the back of the chest and marked lividity of the face and ears and distressing syncopal attacks. I noticed that the thyreoid gland was definitely enlarged.

I at once gave Lugol's solution in doses of 0·18 mil (three minims) every three hours. I regarded the thyreoid as the offending organ as I could detect no evidence of uterine sepsis. Within twelve hours the thyreoid enlargement had vanished, the temperature was normal and the patient was quite well and she has remained so ever since. Some years ago a doctor had told her that she had "a tendency to goitre."

I look upon this case as an acute thyreoiditis in a previous goitre, probably of infective origin from the sinus disease present before parturition. The action of Lugol's solution was dramatic.

RECOVERY FROM HYPERTHYREOIDISM FOLLOWING TREATMENT BY LUGOL'S SOLUTION.[1]

By R. COUPLAND WINN, M.C., M.B., Ch.M. (Sydney),
Honorary Assistant Physician, Sydney Hospital;
Medical Officer, Newtown Baby Health Centre.

MRS. R.N., forty-one years of age, when seen in January, 1925, suffered from enlargement of the thyreoid gland, exophthalmos, fine tremor of the hands, auricular fibrillation, systolic bruit over the pulmonary area and extreme restlessness. She stated that symptoms had been present for eighteen months and that they had been severe for nine months.

Lugol's solution (five drops daily) was prescribed and tincture of digitalis (four mils or one drachm per day). Owing to fear of the effects of iodine which had then not been widely adopted for this condition, the Lugol's solution was given in short courses of about three weeks and intervals of at least six weeks were allowed between courses. The patient was somewhat erratic in the way in which she took both the Lugol's solution and the digitalis. She was also careless about returning for observation. Consequently there was often a much longer interval than six weeks between the courses.

The digitalis was finally suspended in December, 1925. The Lugol's solution was stopped entirely at the end of 1926, as there were no symptoms or signs of hyperthyreoidism. The patient has remained free ever since. She was not put to bed except for a few days on one or two occasions when she got influenza. Unfortunately there was no estimation made of the basal metabolism prior to her recovery. In November, 1927, it was found to be – 19%. This patient was reported because of an

[1] The patient described herein was shown at a meeting of the Medical Science Club on June 2, 1930.

article which appeared in the *Archives of Internal Medicine* of April, 1930. The authors state that on iodine alone and without rest in bed recovery from exopthalmic goitre occurred in 64% of a series of mild cases. They also state that 50% of the series not only recovered, but had given up the use of iodine, some for more than a year. In 86% of the cases improvement was definite and only 14% showed no improvement.

The condition of this patient has been called hyperthyreoidism because of one feature that is probably unusual in exophthalmic goitre. During involution of the thyreoid gland the right lobe shrunk at a slower pace than the left. It suggested the possibility of a central adenomatous area embedded in the diffuse hyperplasia that is found in exophthalmic goitre. This case could not be classed as toxic adenoma only, because of the presence of exophthalmos. There are three important points to note:

1. When recovery had proceeded a certain distance the patient separated from her drunkard husband. Thus a vicious circle was broken.

2. When improvement occurred, she conceived such faith in iodine that it was applied almost daily to the skin over the goitre and to the skin over her wrist (which was fractured during the period of treatment). Probably a certain amount of iodine was absorbed from the skin.

3. Though some writers have stated that iodine medication is not dangerous, but actually efficacious, in toxic adenoma of the thyreoid, the writer has seen one case in which death followed the use of Lugol's solution.

Reviews.

ALCOHOL.

IT was originally intended that Dr. C. C. Weeks should revise and reedit the well known book by Horsley and Sturge on alcohol and the human body. The cost of production of the reedited volume would have placed it beyond the reach of the average social worker and so "Alcohol and Human Life" has been printed as an addition to the former book and it includes many new facts and statistics and a statement of the additional evidence regarding the action of alcohol on the body.[1] The volume is dedicated to Lady Horsley and there is a commendatory foreword by Sir Thomas Barlow.

Dr. Weeks shows that coincidentally with a considerably diminished consumption of alcohol there has been a great improvement in convictions for drunkenness, in cases of cruelty to children and in the direct admission to mental hospitals as the result of alcoholic disease. The diminution in the medicinal use of alcohol is shown by figures exemplifying the lessened cost of alcohol in various hospitals and infirmaries.

In spite of this improvement the author declares that alcoholic indulgence is still the greatest single enemy which Britain has to fear, one which allies itself with all that mars and spoils human life. Its tendency to increase accidents, as with motorists, to diminish longevity, as is seen in men and women closely concerned with the liquor trade, the effects on national and home life, especially as regards children, are all considered. Figures and quotations are given from well known authorities in many countries to show the effect of alcohol on various systems of the body—nervous, muscular, digestive, renal, hepatic, cardiac *et cetera*. In every instance the effect is said to be detrimental to health. The opinions of such authorities as Professor J. Hay who declares that alcohol is useless in pneumonia, and of Sir M. Craig who regards it as "the worst form of sedative, for the dose has to be constantly increased," may be given as examples of the evidence quoted.

Dr. Weeks summarizes the action of alcohol medicinally as follows:

(i) It is a depressant rather than a stimulant.

(ii) It is not so valuable in sudden heart failure as ether.

(iii) It is of some very small value as a foodstuff.

(iv) It may lower blood pressure, but tends to induce permanent degenerative changes at the same time.

(v) It may be used as a narcotic, but other and more reliable hypnotics are available.

There is no doubt as to the changes that have taken place in the attitude of the medical profession generally on the subject of alcohol, both as a medicine and as a beverage. We are well acquainted with the ravages caused by its immoderate use and have learned to appreciate its dangers when it is ordered medicinally for the patient. Whatever views are held as to the desirability or innocuousness of small amounts of alcohol used habitually, the tendency of some moderate drinkers to become alcoholic addicts must be remembered and most medical practitioners will agree with the author that it is scarcely necessary to insist that the indications for its use should be scrutinized as rigorously as those of any other substance in the pharmacopœia.

MENTAL DISORDERS.

THAT "Practical Psychology and Psychiatry," by Dr. C. B. Burr has had a wide popularity in the past is shown by the advent of a revised and enlarged sixth edition.[1] The book is designed for use in training schools for attendants and nurses and in medical classes and as a ready reference for the practitioner. Without doubt the above students will find much of interest within its covers, but unless they are able to afford more than one work of reference, their choice will fall elsewhere. Curiously enough, those who will profit most by its perusal must possess a considerable knowledge of psychiatry. Dr. Burr admits to his nearing the allotted span and uses his long life to provide examples for criticism of modern life and modern teachings. His style is trenchant and as he is an American, most of his material is not unnaturally derived from American sources. The beginner does not want to hear of controversial topics and personal criticisms, he needs an apperception—a crystallized image of the whole of psychiatry. The author forgets this and too frequently uses his pages to show why Burr is right and Blank is wrong. The personal note is indeed very marked and leaves the analytically minded reader with a quite pleasing concept of an author possessing abundant common sense, a commendable forthrightness, marred, however, by a tendency to bias which, whilst permissible in a monograph, is taboo in a primer.

The book is divided into five main divisions—psychology, symbolism in sanity and insanity, insanity, management of cases of insanity, the prevention of insanity. Many of the definitions in use are epigrammatic but vague; thus in *dementia præcox* the leading symptoms of this form of disease are said to be due to an early reduction of brain force; paranoia is said to be due to mental defects from congenital causes or arrest of development in infancy.

The chapters on management of cases of insanity show the results of long experience and are on sounder footing—politeness, firmness, serenity, quietness in action, tact are suitably noted. As a practical example may be cited the mention of the manner in which to enter the room of a patient in seclusion. "After quietly unlocking the door (doors should always be locked and unlocked quietly), the key should be withdrawn and placed in the pocket before the door is opened." Both hands are then free for any emergency.

[1] "Alcohol and Human Life," by Courtenay C. Weeks, M.R.C.S., L.R.C.P., with a Foreword by Sir Thomas Barlow, Bart, F.R.C.P., M.D., F.R.S.; 1929. London: H. K. Lewis and Company, Limited. Crown 8vo., pp. 213. Price: 3s. 6d. net.

[1] "Practical Psychology and Psychiatry, for Use in Training-Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner," by C. B. Burr, M.D.; Sixth Edition; 1930. Philadelphia: F. A. Davis Company. Demy 8vo., pp. 378, revised and enlarged with illustrations. Price: $2.75 net.

On mental hygiene Dr. Burr's remarks provide food for thought. He is "not strong for the new methods in the education of the young." The absence of the old time self-helpfulness, daily work, good literature, discipline, social life and simple amusements are deprecated. "There were no movie shows to deceive one into the belief that he had read *'Les misérables'* or 'Oliver Twist.' There was no 'Victrola' to furnish a purely sensuous satisfaction without effort . . . . At table pernickety choice and pet aversions as to food were not permitted . . . . Children were not transported in enervating ease to and fro between town house and seaside resort or encouraged in the idleness and self-indulgence so dear to the heart (or stomach) of the *nouveaux riches" et cetera.*

The book closes with a chapter on sex education. The author believes that much nervous instability in women is due to their refusal to undergo the hazards of child bearing. He then quotes *in extenso* an interesting correspondence with a young woman who asks the doctor what he does to provide suitable husbands. For a description of how the psychiatrist artfully and profitably deals with this very thorny problem in mental hygiene the reader must refer to the original. The medical profession is truly becoming widened if we must shoulder social responsibilities of such magnitude, yet, as a problem in psychology, we must apparently be prepared to suggest a remedy.

BACTERIOPHAGY.

THE phenomena of bacteriophagy first attracted general interest after the publication of d'Herelle's book in 1921. The claims made there for the importance of bacteriophage in determining natural recovery in the infectious diseases stimulated a great deal of work in various countries. On the whole authoritative opinion elsewhere than in France was disposed to minimize the clinical significance of the phages which indubitably appear in the course of such diseases as bacillary dysentery and cholera.

During the last year or two, however, largely on account of the work of d'Herelle, Malone and Lahiri on the part played by bacteriophage in cholera, interest in the question has been renewed. d'Herelle's latest book, "The Bacteriophage and its Clinical Applications" is a brief semi-popular account which offers an excellent introduction to the subject and gives a fairly complete summary of the important studies on cholera in India.[1]

In some respects the book is irritating to read. d'Herelle dismisses contemptuously almost all the principles of classical immunology as based on laboratory artefacts and without significance for natural disease and shows a tendency to theorize on the part played by phage in disease to such unnatural lengths as, for example, to regard the tubercle bacillus not as a bacterial species but as a symbiosis of a phage and some unidentified bacterium. Despite such overstatement, one must regard the great bulk of the material in the book as based on adequate experimental evidence and logically presented. It is now almost impossible to doubt that in Asiatic cholera and bacillary dysentery, two of the non-immunizing diseases, bacteriophage does play an important part in natural recovery and that its administration is a rational and effective therapeutic procedure. The evidence as to its part in other infections is less convincing, but the numerous therapeutic successes recorded are most impressive. One may note particularly the striking results of Raiga on the treatment of septic infections of the hand by simple injection of staphylococcal phage into the lesions without incision. Even though phage plays no part in the natural process of recovery from septic infections of various sorts, it may still be logical to use the very active bacteriophages that can be developed in the laboratory to favour recovery. A specific bacteriophage is, theoretically at least, the perfect antiseptic, completely innocuous to the tissues, destroying the bacteria either by lysis or by rendering them readily phagocytable and increasing in amount in the course of its activity.

One leaves the book with a vision of an aseptic world in which any threatened bacterial epidemic will be immediately quelled by the liberation of an appropriate bacteriophage into the public water supply, and where all infants will have a highly polyvalent phage, and a suitable strain of *Bacillus coli* for it to grow on, implanted in their colons soon after birth.

It is an interesting and stimulating book, but if a well balanced idea of the present position in regard to bacteriophage is to be gained, it should be read in conjunction with a more critically sceptical account such as that of Bronfenbrenner in "The Newer Knowledge of Bacteriology and Immunology."

[1] "The Bacteriophage and Its Clinical Applications," by F. d'Herelle, 1929. London: Baillière, Tindall and Cox. Demy 8vo., pp. 262. Price: 18s. net.

Notes on Books, Current Journals and New Appliances.

AN INHALER FOR ETHER ADMINISTRATION BY THE OPEN METHOD.

THE attention of readers is directed to a description of an inhaler for the administration of ether by the open method, given in *The British Medical Journal* of June 14, 1930. This apparatus, of which two illustrations are given, has been reported by Dr. W. Stanley Sykes, Anæsthetist to the Leeds General Infirmary. It is made of aluminium. Dr. Sykes claims that the apparatus preserves the simplicity of the open method of administration and increases its safety. The gauze-covered mask is placed in a container that is situated at the side of the face and never above it. Any excess of ether is trapped in a well at the bottom of the container. It is impossible for the ether to get into the eyes of the patient if this apparatus is used. It would appear that this apparatus can do all that is claimed for it.

THE WRITINGS OF THE LATE JAMES MACKENZIE.

DR. W. B. R. MONTEITH has rendered a service to medicine by compiling a bibliography of the writings of the late James Mackenzie.[1] Mackenzie's writings have not been collected, more is the pity. This small book does something to repair that omission. The papers are collected under four headings: "Medical Education and Research," "Cardiology," "Miscellaneous" and "Symptomatology." As is to be expected, papers on cardiology form the largest number. In his papers on medical research Mackenzie always emphasized the rôle of the general practitioner and he was, of course, the one who, above all others, showed how general practice may be used to advance knowledge. This small book should be in the hands of every medical writer and of every medical historian.

PROGRESS IN MEDICINE.

THE "Medical Annual" for 1930, the forty-eighth of the series, is in every way a worthy successor to its predecessors. The book is described as "a year book of treatment and practitioner's index."[2] It is really a review of the year's work in the treatment of disease. The several sections have been compiled by well known medical writers and references are appended at the foot of every section. In the early pages of the book there is an appreciation of the late Dr. Percy Roberts Wilde who died in 1929. It was he who in 1883 first conceived the idea of publishing an annual review of medical progress. A charming picture of him is reproduced.

This is so well known and highly valued a publication that we can but repeat our yearly advice to medical practitioners to place a standing order with the publishers.

[1] "Bibliography with Synopsis of the Original Papers of the Writings of Sir James Mackenzie, M.D., F.R.C.P., LL.D., F.R.S.", edited by W. B. R. Monteith; 1930. London: Humphery Milford, Oxford University Press. Demy 8vo., pp. 98.

[2] "The Medical Annual: A Year Book of Treatment and Practitioner's Index," Forty-eighth Year; 1930. Bristol: John Wright and Sons Limited; London: Simpkin Marshall Limited. Demy 8vo., pp. 752, with illustrations. Price: 20s. net.

The Medical Journal of Australia

SATURDAY, AUGUST 2, 1930.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

THE INDUCTION OF ABORTION IN VISCERAL DISEASE.

WHEN a medical man expresses to a patient an opinion on the necessity or otherwise of the induction of abortion, he assumes a grave legal and medical responsibility—legal because he must, if necessary, be prepared to defend the validity of his action, and medical because he is required to do his best for his patient. The State claims the right to protect its subjects, actual and potential, born and unborn. Though by virtue of their special knowledge and high standard of moral conduct members of the medical profession possess the privilege of deciding whether abortion should be induced in the interest of a mother's health, they are not relieved of complete responsibility for their actions. The rifeness of criminal abortion performed by unqualified and immoral persons should stimulate in us the determination never to recommend induction unless the medical indications are unequivocal. The danger of attempts to make a medical man an innocent catspaw by unscrupulous people who desire the termination of pregnancy on social and not on medical grounds and who exaggerate a woman's ill condition in order to achieve their aim, has been emphasized by Professor W. S. Dawson in one of the three papers published in this issue. It is interesting to read that Professor Dawson believes that the indications for induction in patients afflicted with disorders of the mind are remarkably rare and he quotes the opinions of distinguished psychiatrists who hold that mental disease seldom, if ever, justifies the artificial termination of pregnancy. With this sound and generally accepted view the opinion of "another legal authority" (whom Professor Dawson prefers not to name), that "the fœtus is not yet an independent human being and every woman by virtue of the right over her own body is entitled to decide whether it should become one," stands out in startling relief.

When we consider, however, the relationship of pregnancy to morbid conditions of the lungs and heart, we are confronted with a problem by no means so easy of solution. Dr. E. W. Fairfax and Dr. H. C. E. Donovan, treating of the subject in connexion with pulmonary tuberculosis and cardiac diseases respectively, manifest a less conservative attitude, thereby reflecting the opinions of their colleagues who see in pregnancy a source of danger to the physical well-being of many women. That these diseases may be aggravated by parturition is a statement seldom called in question. The association of pregnancy and tuberculosis may so impair a patient's nutrition and lead to so rapid a decline in her health as to jeopardize her chances of recovery. Even more serious in its consequences may be the influence of lactation. Likewise the risk of pregnancy and labour to the patient suffering from a cardiac lesion may be apparent. Dr. Fairfax and Dr. Donovan have been careful to limit the discussion of their difficult subjects to observations which are purely clinical. In contrast the literature abounds in maxims of questionable soundness—doctrines of broad generalization which are no longer applicable in view of the advances made in clinical and pathological knowledge. It is man's misfortune to be a slave to tradition and the manumission of medical men is by no means complete. Because medicine is still an inexact science, the tyranny of authority holds sway. Dubois stated many years ago that a tuberculous woman might withstand one pregnancy well, a second badly, but a third never. This *ex cathedrâ* utterance was sup-

ported by Osler, whose reputation as a physician was rivalled by few. Yet we know of no proof that the statement is correct. The advance of time has brought with it the realization that tuberculosis may in certain instances fail to terminate life, however severe the strain thrown on the body of the affected individual. Pregnancy, unremitting toil, social hardships, may fail to quench the light of life. Other victims of the disease, with all social and economic advantages at their command, may go rapidly to their graves. The resistance of the patient's tissues and her personal courage are the deciding factors. Yet, broadly speaking, the problem of the treatment of tuberculosis is one of nutrition, social comfort and freedom from economic stress. Because pregnancy may endanger these safeguards of recovery, it becomes a potential danger. The physician called upon to give a decision on the proposal to determine pregnancy needs sound judgement and knowledge of all the circumstances of the patient's illness and position; he cannot afford to be influenced by shibboleths. Because physicians now make a more meticulous study of the individual needs of their patients, the number of inductions of labour in tuberculous women is becoming progressively fewer.

Our conception of the influence of pregnancy and labour on cardiac lesions is undergoing a similar transformation. The "newer cardiology" of Mackenzie and Lewis is slowly but surely moulding our opinions. By concentration of our attention on the reserve power of the heart muscle we are being led to assess lesions of the heart at their true worth. Mitral stenosis is no longer an invariable indication for the termination of pregnancy; nor is aortic regurgitation. The prognosis of these conditions is the prognosis of the cardiac reserve and the induction of abortion is justified only when the storm and stress of labour promise to depreciate dangerously the power of the myocardial pump. Even then abortion should be performed only with proper appreciation of the risks of hæmorrhage and sepsis and after observation of the effects of rest in bed and therapeutic use of digitalis. In digitalis we have a powerful defence against cardiac decompensation. If, as is now believed, the greatest overload on the heart occurs during labour, the earlier termination of the second stage under chloroform anæsthesia or Cæsarean section, recommended so strongly by Dr. Donovan, should suffice in many cases to spare not only the heart of the mother, but also the life of the child.

Current Comment.

SPASTIC ILEUS.

ACUTE intestinal obstruction is of such frequent occurrence and is associated with possibilities of such grave danger, its onset is of such startling suddenness, its relief so dramatic and its origin so varied that it has been studied and debated again and again by physician and surgeon and physiologist until it would appear to have few remaining features for investigation.

In all probability the abdominal colic seen so commonly after dietary indiscretion in childhood is often due to violent peristalsis proximal to a transient spastic constriction of some part of the intestine. As a rule such spasm is merely temporary, but occasionally it persists until it presents features of true complete intestinal obstruction. To such a condition may be applied the term spastic ileus.

Intestinal obstruction due to spastic contraction of involuntary muscle has long been recognized and many theories have been advanced as to its possible causation. Frequently there is no apparent cause, so hysteria has been diagnosed on many occasions, in fact, some observers have declared that the condition is always a manifestations of hysteria. Such an hypothesis cannot be accepted. Probably its causes are varied according to the origin of the stimulus to the involuntary muscles of the intestinal wall.

Either small or large bowel may be affected and in one or many places. The most common site is the lower part of the ileum. The affected portion of bowel is contracted and bloodless and Freeman remarks that it may be so stiff that it can be lifted at one end and held horizontally without bending. Frequently the spasm relaxes during surgical manipulation, but may persist and has been observed *post mortem*.

In a recent interesting paper Leo M. Zimmerman reviews the literature and discusses the condition as observed by himself in two instances.[1] He divides the causes of spastic ileus into three main groups, according to the section of the nervous supply affected. The cause may be local, when it acts by stimulation of the plexus of Auerbach and Meissner, it may be some lesion at a distance, when it acts reflexly *viâ* the cœliac and inferior mesenteric plexus, or, finally, it may be in the central nervous system.

[1] *Surgery, Gynecology and Obstetrics*, April, 1930.

Experimentally the local application of heat or electrical irritation, the injection of physostigmine into the lumen of the bowel or painting the serosa with adrenalin or barium chloride solution causes spasm; the fact that similar spasm may be produced in an excised portion of bowel indicates that the action is purely a local one. The presence of small gall stones in the intestinal tract sometimes results in spastic ileus and it has been suggested by Koerte that the necessary stimulation to the plexus of Auerbach and Meissner is provided, not by the foreign body *per se*, but by the irritating substances which have developed in the more or less stagnating matter immediately proximal to it. It has long been recognized that intestinal obstruction may be caused by masses of intestinal worms, but it has been shown that one or several worms may cause enterospasm purely by local irritation and without forming an embolus. Among other local causes the author mentions bleeding into the intestinal tract, ulceration, injury to herniæ and circulatory disturbances, such as arteriosclerosis of the mesenteric vessels.

Talma has shown by experiment that stimulation of the cœliac plexus causes intestinal spasm and clinically spastic ileus has been observed in patients whose cœliac plexuses have been the seat of inflammatory or cicatricial processes, due to such conditions as pancreatitis, cancer of pancreas *et cetera*. Several authors, including Zimmerman himself, have observed spastic ileus following contusions of the abdominal wall in the absence of any discoverable lesion within the abdomen. Blood in the abdominal cavity may sometimes be a cause of spastic ileus: a number of women who had suffered from ruptured extrauterine pregnancies, on being questioned, all gave a history suggesting intestinal spasm. Though postoperative ileus is almost invariably paralytic in nature, spastic obstructions are occasionally found; these are regarded as due to reflex action, though jejunal spasm following gastro-enterostomy is more likely to be produced by the local irritative action of the stomach contents.

Zimmerman instances the common emotional diarrhœa as an argument in favour of the view that the central nervous system has some control over the involuntary musculature of the intestines. Among the central causes of spastic ileus he places *tabes dorsalis*, Little's disease, lead poisoning and influenza. Steindl found degenerative changes in the medulla of two patients who had died of postoperative spastic ileus, and he postulated some inherent "tendency to spasm" in such people. His view scarcely seems justified on the evidence. Zimmerman declines to accept hysteria as a cause in any instance.

Clinically spastic ileus may be indistinguishable from mechanical obstruction, but the general condition of the patient is usually much better in the former and the pulse tends to be slower, though this is by no means a constant sign.

If diagnosis could be made with certainty, the only treatment necessary would be palliative, but as there is no sure way of distinguishing functional from mechanical obstruction, surgical measures are called for. Amberger recommends enterostomy, but this appears unjustifiable, save in some rare instances of chronic obstruction; as in the first place the condition is functional and, secondly, if it is due to other than local irritation, there can be no guarantee that it will not recur at some other site.

In the series of 159 cases reviewed by the author the diagnosis was made either in the operating theatre or in the *post mortem* room. One hundred and two patients recovered, 47 died and the outcome in regard to the remaining ten was not recorded. In nine of those who died, spastic ileus was not a cause of death, and in 19 it was a contributing factor only. Fourteen of those who recovered, had further symptoms after operation; some of these were relieved by palliative measures, others were submittd to further surgical treatment and othrs again appeared to suffer over an indefinite period.

These figures cannot, of course, be accepted as indicating the true mortality rate, as they do not include the numbers of patients who recover without surgical intervention. A functional condition such as this must vary greatly in its degrees of severity and most of those affected by it no doubt recover under the influence of ordinary palliative treatment; the call for operation will depend on the completeness and the duration of the obstruction and the methods and views of the individual surgeon.

THE NORMAL TONSIL.

At a recent meeting of the Section of Laryngology of the Royal Society of Medicine there arose a question which is perhaps not generally recognized.[1] E. A. Peters demonstrated some sections of tonsils and from the changes present concluded that it was easy to understand that more symptoms arise from septic tonsils than from dental apical abscess. Dan McKenzie said that the use of the word sepsis in connexion with tonsils is ridiculous, as all tonsils are septic. T. B. Layton submitted that the only normal tonsil is the inflamed tonsil. He said that this is a paradox that has to be faced, since a structure is normal when it is performing its functions; and the function of the tonsil is to react and to resist the invasion of the upper air passages by pathogenic microorganisms. This point is not one of mere academic interest nor is it a play on words. Dan McKenzie believes that a tonsil should be judged by its behaviour, not by its simple appearance or by the bacteriological reports upon it. This view must be accepted. Undoubtedly more information would be gained about the condition of individual patients and a better understanding of tonsillitis would be obtained if tonsils on removal were submitted to histological examination by pathologist and surgeon.

[1] *Proceedings of the Royal Society of Medicine*, May, 1930.

Abstracts from Current Medical Literature.

DERMATOLOGY.

Mercurial Ointments in the Treatment of Syphilis.

H. N. COLE, N. SCHREIBER AND T. SOLLMAN (*Archives of Dermatology and Syphilology*, March, 1930) have been working for several years on the absorption of mercury from the skin after inunction as measured by a sensitive quantitative estimation of the amount excreted. It was concluded that the absorption and excretion of mercury after inunction are directly dependent on the concentration of the metal in the base. Observations on 5%, 25% and 50% preparations show that the excretion is about in proportion to the concentration in the ointment used. Mercury in an oleate base does not seem to be much more absorbed than in the ordinary benzoinated lard and suet base. Probably there will be as good an absorption from an old mercury official ointment as from a fresh preparation. Colloidal mercury ointments show no greater excretion of mercury than official mercury ointments of equal concentration in benzoinated lard. Salivation is possibly more frequent with the colloidal preparations. Fifty *per centum* of mercury in a stiff petroxolin base shows no especial difference in the excretion from that found when simple inunction of 50% mercurial ointment is used. Massive or intensive weekly inunctions of a 30% mercurial ointment, containing in all nine grammes of metallic mercury, give an equal or higher excretion of mercury than the simple daily 50% mercurial ointment, 50% clean ointment (that is, with the superfluous ointment removed with benzene after inunction) or daily intramuscular injections.

The Liver in Active Syphilis.

S. IRGANG AND A. M. SALA (*Archives of Dermatology and Syphilology*, April, 1930) investigate 179 cases of cutaneous syphilis with reference to hepatic trouble. In summarizing, they state that 25% had a direct delayed Van den Bergh reaction which occurred in 17% of cases with secondary syphilis, 24% of cases with tertiary syphilis and in four cases with initial lesions. In all but four of forty-five cases with positive Van den Bergh reactions, the icterus index was above six. In many of the apparently normal cases the index was above six. This, however, was not considered an indication of an existing hepatitis, unless confirmed by a positive Van den Bergh test. In 12% of 134 cases with no reaction the Van den Bergh response became positive while the patients were under treatment. Clinical jaundice, however, did not occur in any of these. Of the patients with positive reactions who were receiving from four to eight treatments, only 10% developed clinical jaundice in spite of a maximum therapeutic dosage. It is concluded by the authors that the Van den Bergh test is a rapid and accurate method for detecting hepatitis. They found that mild cases of hepatitis do not present symptoms; but when gastric symptoms do occur, tests should be performed to determine the function of the liver. The presence of a mild syphilitic hepatitis is not a contraindication to arsphenamine therapy, although all patients should be kept under strict observation.

Bismuth Arsphenamine Sulphonate ("Bismarsen") in the Treatment of Syphilis.

J. A. KOLMER (*Archives of Dermatology and Syphilology*, March, 1930) gives his experience of the use of "Bismarsen" in the treatment of syphilis. It is given intramuscularly, 0·2 gramme in two cubic centimetres of butyn water. It is both water soluble and tissue soluble and is rapidly absorbed from the muscles. It does not cause the hæmolysis or agglutination of washed or unwashed erythrocytes or the precipitation of serum *in vitro*. The incidence of constitutional reactions is low. "Bismarsen" appears to act more slowly in acute syphilis than arsphenamine, but is especially valuable in chronic syphilis and is also useful in congenital syphilis and Vincent's angina.

The Distribution and Excretion of Mercury.

A. G. YOUNG, F. H. L. TAYLOR AND H. H. MERRITT (*Archives of Dermatology and Syphilology*, April, 1930) in a comprehensive paper deal with certain pharmacological and biochemical aspects of the compounds of mercury. Young and Taylor recently described a simple and accurate method for mercury determination for the study of the rate of excretion of various mercury compounds, their penetration into the cerebro-spinal fluid and the effect of acids and alkalis on the rate of excretion in man. In laboratory animals they studied the distribution of mercury in the tissues during and following the period of active excretion. It was found that the ingestion of acids increases the rate of excretion of mercury, while the opposite effect is produced by the ingestion of alkalis such as calcium. Hence it would appear that in acute mercurial intoxication the kidney, liver and other organs might be spared if the patient were given large amounts of calcium and thereby allowed to excrete the mercury more slowly. Experimental work to verify this inference is being conducted. Conversely it would appear that during active medication with mercury its storage might be retarded by prohibition of the use of food rich in calcium and other alkalis. Insoluble mercury compounds, injected intramuscularly, are excreted over a more prolonged period than are the soluble compounds; therefore it is suggested that the water soluble compounds of mercury should be given in repeated small doses and that the total dose should be smaller than the insoluble compounds. In the treatment by mouth it was found that the mercury excreted was very variable, some patients apparently absorbing very little. In these circumstances also it seems possible to prevent storage of mercury and obtain the same therapeutic effect by giving the patient an acid diet, fewer injections and a smaller amount of mercury. Soluble and insoluble mercury compounds penetrate into the cerebro-spinal fluid in demonstrable amounts. The concentration of mercury in the cerebro-spinal fluid increases in direct proportion to the number of doses and amount of mercury given when soluble compounds are used. The bone and liver serve as a reservoir for the unexcreted mercury. Prolonged administration of mercury, especially when the subject is on an alkaline diet, results in the deposit in the body of a large amount of mercury which may be released suddenly by any reaction which lowers the pH value of the blood or tissues. It is, therefore, desirable to control the diet of the patient during the administration of mercury and in mercury intoxication to enforce alkalis and fluids. In the discussion on the authors' paper it was stated that as much as 0·5 milligramme of mercury was found in 25 to 50 cubic centimetres of spinal fluid after intensive medication, whereas reports point to the absence of mere traces of bismuth in the cerebro-spinal fluid.

UROLOGY.

Classification of Prostatitis.

F. FARMAN (*Journal of Urology*, January, 1930) presents a plan of classification of the various types of prostatitis; this plan is based on the present day conception of that disease. The disease may first of all be broadly grouped into two main categories, the primary or specific type resulting from gonococcal disease, and the secondary or non-specific type resulting from infection from a distant focus. In the first group there are three main types: (i) Simple catarrhal or follicular prostatitis, (ii) true chronic parenchymatous prostatitis and (iii) atrophic or atonic prostatitis with follicular prostatitis. The pathological process may vary from simple congestion through all grades of inflammation up to the formation of tiny follicular abscesses; coalescence of many follicular abscesses with destruction of stroma leads to the formation of true prostatic abscess. True chronic parenchymatous prostatitis comprises the largest group and here not only are the glands involved, but also the stroma. There are leucocytic infiltration, fibrous tissue formation, shrinkage or dilatation of the acini and distortion or compression of the ducts. The gonococcus is seldom found in

such a type of diseased prostate, but the soil has already been prepared for a continuance of the infection by the *Bacillus coli*, the *Staphylococcus albus* or the *Streptococcus pyogenes*. Atrophic prostatitis is not anatomically entitled to belong to a different group from types (i) and (ii), but present special syndromes which probably result from a simultaneous psychological affection. This group includes cases of prostatorrhœa, spermatorrhœa, premature ejaculation and impotence. The second great division of prostatitis, the focal group, is a comparatively recent discovery. According to von Lackum, about one half of all cases of prostatitis seen at the Mayo Clinic are due to tonsillitis, periapical dental lesions, influenza and other such causes. In about 35% of such cases the streptococcus is grown from the prostate; in about 22% the *Staphylococcus albus* and in about 33% the cultures are sterile.

Small Round-Cell Sarcoma of the Bladder.

D. W. MACKENZIE (*British Journal of Urology*, December, 1929) reports details of one personal case of small round-cell sarcoma of the bladder and reviews twenty-two cases discovered in the literature. The symptoms are similar to those of any other malignant tumour of the bladder. The diagnosis is usually made by the pathologist either from a snipping at operation or from the autopsy specimen. Metastases may occur in the regional lymph glands, but remote metastases are late and rare. Wide radical excision is the only cure; less radical operations allow early recurrence. A cure by either X rays or radium has not yet been reported. The operative results in the series under review are extremely poor, death following from continued hæmaturia or toxæmia in most cases. The author's patient suffered from recurrence seven months after operation, but is now well four months after a second operation.

Management of Vesical Neoplasms.

J. F. MCCARTHY (*Journal of Urology*, March, 1930) states the conclusions at which he has arrived regarding the management of cases of malignant growths of the bladder. Precise diagnosis should be made by the well known urological measures, not only prior to operation, but also by free mobilization and careful direct palpation at the time of operation. This particularly applies to the infiltrating type of carcinoma which may extend deeply outside the bladder wall. When the growth is in the dilatable part of the bladder, it should be widely excised. If on the trigone, it should be treated by radical diathermy. The bladder wall is punctured well beyond the growth with a fine copper needle electrode, the punctures being repeated until a ring of coagulation surrounds the growth. The latter is now destroyed with large area electrodes, a low milliampèrage and prolonged time of contact being used, and as a consequence deep penetration is secured. When a ureteric orifice is involved, the problem is difficult, for reimplantation into the bladder gives very doubtful results in regard to subsequent kidney function on that side. The author has not had happy results with immediate ureteric ligation. It may be that temporary abdominal ureterostomy followed later by nephrectomy is a preferable method. When a basal growth cannot be destroyed by diathermy, it must be removed by total cystectomy associated with abdominal ureterostomy. In less serious cases cystoscopic diathermy with very long electrodes is permissible and is often useful. The author's experiences with radium and deep X ray therapy have been distressingly disappointing and he now deprecates their use.

The Use of "Uroselectan."

M. SWICK (*Verhandlungen der Deutschen Gesellschaft für Urologie*, 1929) reports on his work with "Uroselectan" as a means of securing urographic results after intravenous injection of a contrast material. "Uroselectan" was preceded in the chemical experiments of Professor Binz and Dr. Räth in Berlin by "Selectan-neutral," a material containing 54% of iodine. The new substance gives denser shadows than the former and does not deteriorate on being kept. This substance contains 42% of iodine and a man of 60 kilograms weight can tolerate easily about 180 grammes of "Uroselectan" administered intravenously. Eighty-five to ninety-five *per centum* of the exhibited iodine can be recovered in the urine. After a quarter of an hour following the injection no more iodine can be demonstrated in the blood. For radiological application in man no more than 120 cubic centimetres of a 30% to 34% solution are used, that is, about 40 grammes of the substance. Up to the present time the method has been applied to 119 patients of all ages and suffering from very various grades of illness; all stood the injection without trouble. No thromboses have yet been observed. The technique of injection is as follows. A twenty cubic centimetre "Record" syringe with needle is boiled in distilled water. The total injection is made within three to five minutes and it is useful to have two or more twenty cubic centimetre syringes ready for use. The injection is made on the X ray table and the first exposure is made five to ten minutes after the end of the injection. In order to gain information of the excretory activity of the kidney two further skiagrams are made at half hour intervals. Before each exposure the bladder must be emptied to avoid the pelvic portion of the ureter being masked by the "Uroselectan" in the bladder. With good renal efficiency the excretion is at its height about this time (one to one and a half hours) and after three hours the "Uroselectan" will not throw a shadow any longer. With well developed insufficiency a useful picture is obtained only between six and twenty-four hours after injection and with high degrees of destruction, not at all.

A. VON LICHTENBERG (*Verhandlungen der Deutschen Gesellschaft für Urologie*, 1929) admits that at first he was very doubtful about the possibility of finding a suitable substance for intravenous pyelography. He declares now that the work of Roseno and Swick has made intravenous pyelography a clinical measure of no little value. The intravenous method is an excretory method and allows radiological estimation of the renal efficiency. In eighty-four cases of intravenous pyelography performed up to the present the author has checked the efficiency findings in thirty-five cases by operation and in one by autopsy. In all studied cases the urograms were applicable for clinical diagnosis. As yet no technical fallacy has had to be recorded. If no renal shadow was found, then either there was congenital absence of the organ or else the kidney was practically destroyed by disease or blockage of its outlet and consequent failure of function. The intravenous method has a very particular value in allowing uroscopic (screen) examinations of the pelvis and ureter, in order that the dynamics of the tract in cases of hydronephrosis, calculus blockage *et cetera* may be studied at leisure. In only 22 out of 61 cases had ureteric catheterization and ordinary pyelography to be added to the diagnostic measures in order that final conclusions might be read. The following may be taken as special indications for intravenous pyelography: (i) Where, for anatomical, pathological or technical reasons, cystoscopy, ureteric catheterization and pyelography cannot be carried out; (ii) in all cases of ureteric obstruction, when an opaque fluid cannot be injected past the blockage point. On the contrary, there lie in the untouched domain of pyelography all those cases in which, owing to poor or absent renal efficiency, no shadow is cast with the intravenous method.

Test of Cure in Gonorrhœa.

J. SCHEREschewsky (*Deutsche Medizinische Wochenschrift*, February 14, 1930) describes the various methods of provoking a urethral discharge in cases of gonorrhœa without symptoms. Rejecting most of the local methods as too painful, he recommends the use of "Choleval." One cubic centimetre of a 2·5% solution is injected into the urethra at bedtime and after retention for thirty seconds is allowed to drain away. Next morning in positive cases there will be a thick yellowish discharge in which numerous gonococci can be found. The procedure is simple and painless and to be preferred to injections of gonococcal vaccines for the same purpose.

Abstracts from Current Medical Literature.

DERMATOLOGY.

Mercurial Ointments in the Treatment of Syphilis.

H. N. COLE, N. SCHREIBER AND T. SOLLMAN (*Archives of Dermatology and Syphilology*, March, 1930) have been working for several years on the absorption of mercury from the skin after inunction as measured by a sensitive quantitative estimation of the amount excreted. It was concluded that the absorption and excretion of mercury after inunction are directly dependent on the concentration of the metal in the base. Observations on 5%, 25% and 50% preparations show that the excretion is about in proportion to the concentration in the ointment used. Mercury in an oleate base does not seem to be much more absorbed than in the ordinary benzoinated lard and suet base. Probably there will be as good an absorption from an old mercury official ointment as from a fresh preparation. Colloidal mercury ointments show no greater excretion of mercury than official mercury ointments of equal concentration in benzoinated lard. Salivation is possibly more frequent with the colloidal preparations. Fifty *per centum* of mercury in a stiff petroxolin base shows no especial difference in the excretion from that found when simple inunction of 50% mercurial ointment is used. Massive or intensive weekly inunctions of a 30% mercurial ointment, containing in all nine grammes of metallic mercury, give an equal or higher excretion of mercury than the simple daily 50% mercurial ointment, 50% clean ointment (that is, with the superfluous ointment removed with benzene after inunction) or daily intramuscular injections.

The Liver in Active Syphilis.

S. IRGANG AND A. M. SALA (*Archives of Dermatology and Syphilology*, April, 1930) investigate 179 cases of cutaneous syphilis with reference to hepatic trouble. In summarizing, they state that 25% had a direct delayed Van den Bergh reaction which occurred in 17% of cases with secondary syphilis, 24% of cases with tertiary syphilis and in four cases with initial lesions. In all but four of forty-five cases with positive Van den Bergh reactions, the icterus index was above six. In many of the apparently normal cases the index was above six. This, however, was not considered an indication of an existing hepatitis, unless confirmed by a positive Van den Bergh test. In 12% of 134 cases with no reaction the Van den Bergh response became positive while the patients were under treatment. Clinical jaundice, however, did not occur in any of these. Of the patients with positive reactions who were receiving from four to eight treatments, only 10% developed clinical jaundice in spite of a maximum therapeutic dosage. It is concluded by the authors that the Van den Bergh test is a rapid and accurate method for detecting hepatitis. They found that mild cases of hepatitis do not present symptoms; but when gastric symptoms do occur, tests should be performed to determine the function of the liver. The presence of a mild syphilitic hepatitis is not a contraindication to arsphenamine therapy, although all patients should be kept under strict observation.

Bismuth Arsphenamine Sulphonate ("Bismarsen") in the Treatment of Syphilis.

J. A. KOLMER (*Archives of Dermatology and Syphilology*, March, 1930) gives his experience of the use of "Bismarsen" in the treatment of syphilis. It is given intramuscularly, 0·2 gramme in two cubic centimetres of butyn water. It is both water soluble and tissue soluble and is rapidly absorbed from the muscles. It does not cause the hæmolysis or agglutination of washed or unwashed erythrocytes or the precipitation of serum *in vitro*. The incidence of constitutional reactions is low. "Bismarsen" appears to act more slowly in acute syphilis than arsphenamine, but is especially valuable in chronic syphilis and is also useful in congenital syphilis and Vincent's angina.

The Distribution and Excretion of Mercury.

A. G. YOUNG, F. H. L. TAYLOR AND H. H. MERRITT (*Archives of Dermatology and Syphilology*, April, 1930) in a comprehensive paper deal with certain pharmacological and biochemical aspects of the compounds of mercury. Young and Taylor recently described a simple and accurate method for mercury determination for the study of the rate of excretion of various mercury compounds, their penetration into the cerebro-spinal fluid and the effect of acids and alkalis on the rate of excretion in man. In laboratory animals they studied the distribution of mercury in the tissues during and following the period of active excretion. It was found that the ingestion of acids increases the rate of excretion of mercury, while the opposite effect is produced by the ingestion of alkalis such as calcium. Hence it would appear that in acute mercurial intoxication the kidney, liver and other organs might be spared if the patient were given large amounts of calcium and thereby allowed to excrete the mercury more slowly. Experimental work to verify this inference is being conducted. Conversely it would appear that during active medication with mercury its storage might be retarded by prohibition of the use of food rich in calcium and other alkalis. Insoluble mercury compounds, injected intramuscularly, are excreted over a more prolonged period than are the soluble compounds; therefore it is suggested that the water soluble compounds of mercury should be given in repeated small doses and that the total dose should be smaller than the insoluble compounds. In the treatment by mouth it was found that the mercury excreted was very variable, some patients apparently absorbing very little. In these circumstances also it seems possible to prevent storage of mercury and obtain the same therapeutic effect by giving the patient an acid diet, fewer injections and a smaller amount of mercury. Soluble and insoluble mercury compounds penetrate into the cerebro-spinal fluid in demonstrable amounts. The concentration of mercury in the cerebro-spinal fluid increases in direct proportion to the number of doses and amount of mercury given when soluble compounds are used. The bone and liver serve as a reservoir for the unexcreted mercury. Prolonged administration of mercury, especially when the subject is on an alkaline diet, results in the deposit in the body of a large amount of mercury which may be released suddenly by any reaction which lowers the pH value of the blood or tissues. It is, therefore, desirable to control the diet of the patient during the administration of mercury and in mercury intoxication to enforce alkalis and fluids. In the discussion on the authors' paper it was stated that as much as 0·5 milligramme of mercury was found in 25 to 50 cubic centimetres of spinal fluid after intensive medication, whereas reports point to the absence of mere traces of bismuth in the cerebro-spinal fluid.

UROLOGY.

Classification of Prostatitis.

F. FARMAN (*Journal of Urology*, January, 1930) presents a plan of classification of the various types of prostatitis; this plan is based on the present day conception of that disease. The disease may first of all be broadly grouped into two main categories, the primary or specific type resulting from gonococcal disease, and the secondary or non-specific type resulting from infection from a distant focus. In the first group there are three main types: (i) Simple catarrhal or follicular prostatitis, (ii) true chronic parenchymatous prostatitis and (iii) atrophic or atonic prostatitis with follicular prostatitis. The pathological process may vary from simple congestion through all grades of inflammation up to the formation of tiny follicular abscesses; coalescence of many follicular abscesses with destruction of stroma leads to the formation of true prostatic abscess. True chronic parenchymatous prostatitis comprises the largest group and here not only are the glands involved, but also the stroma. There are leucocytic infiltration, fibrous tissue formation, shrinkage or dilatation of the acini and distortion or compression of the ducts. The gonococcus is seldom found in

such a type of diseased prostate, but the soil has already been prepared for a continuance of the infection by the *Bacillus coli*, the *Staphylococcus albus* or the *Streptococcus pyogenes*. Atrophic prostatitis is not anatomically entitled to belong to a different group from types (i) and (ii), but present special syndromes which probably result from a simultaneous psychological affection. This group includes cases of prostatorrhœa, spermatorrhœa, premature ejaculation and impotence. The second great division of prostatitis, the focal group, is a comparatively recent discovery. According to von Lackum, about one half of all cases of prostatitis seen at the Mayo Clinic are due to tonsillitis, periapical dental lesions, influenza and other such causes. In about 35% of such cases the streptococcus is grown from the prostate; in about 22% the *Staphylococcus albus* and in about 33% the cultures are sterile.

Small Round-Cell Sarcoma of the Bladder.

D. W. MACKENZIE (*British Journal of Urology*, December, 1929) reports details of one personal case of small round-cell sarcoma of the bladder and reviews twenty-two cases discovered in the literature. The symptoms are similar to those of any other malignant tumour of the bladder. The diagnosis is usually made by the pathologist either from a snipping at operation or from the autopsy specimen. Metastases may occur in the regional lymph glands, but remote metastases are late and rare. Wide radical excision is the only cure; less radical operations allow early recurrence. A cure by either X rays or radium has not yet been reported. The operative results in the series under review are extremely poor, death following from continued hæmaturia or toxæmia in most cases. The author's patient suffered from recurrence seven months after operation, but is now well four months after a second operation.

Management of Vesical Neoplasms.

J. F. MCCARTHY (*Journal of Urology*, March, 1930) states the conclusions at which he has arrived regarding the management of cases of malignant growths of the bladder. Precise diagnosis should be made by the well known urological measures, not only prior to operation, but also by free mobilization and careful direct palpation at the time of operation. This particularly applies to the infiltrating type of carcinoma which may extend deeply outside the bladder wall. When the growth is in the dilatable part of the bladder, it should be widely excised. If on the trigone, it should be treated by radical diathermy. The bladder wall is punctured well beyond the growth with a fine copper needle electrode, the punctures being repeated until a ring of coagulation surrounds the growth. The latter is now destroyed with large area electrodes, a low milliampèrage and prolonged time of contact being used, and as a consequence deep penetration is secured. When a ureteric orifice is involved, the problem is difficult, for reimplantation into the bladder gives very doubtful results in regard to subsequent kidney function on that side. The author has not had happy results with immediate ureteric ligation. It may be that temporary abdominal ureterostomy followed later by nephrectomy is a preferable method. When a basal growth cannot be destroyed by diathermy, it must be removed by total cystectomy associated with abdominal ureterostomy. In less serious cases cystoscopic diathermy with very long electrodes is permissible and is often useful. The author's experiences with radium and deep X ray therapy have been distressingly disappointing and he now deprecates their use.

The Use of "Uroselectan."

M. SWICK (*Verhandlungen der Deutschen Gesellschaft für Urologie*, 1929) reports on his work with "Uroselectan" as a means of securing urographic results after intravenous injection of a contrast material. "Uroselectan" was preceded in the chemical experiments of Professor Binz and Dr. Räth in Berlin by "Selectan-neutral," a material containing 54% of iodine. The new substance gives denser shadows than the former and does not deteriorate on being kept. This substance contains 42% of iodine and a man of 60 kilograms weight can tolerate easily about 180 grammes of "Uroselectan" administered intravenously. Eighty-five to ninety-five *per centum* of the exhibited iodine can be recovered in the urine. After a quarter of an hour following the injection no more iodine can be demonstrated in the blood. For radiological application in man no more than 120 cubic centimetres of a 30% to 34% solution are used, that is, about 40 grammes of the substance. Up to the present time the method has been applied to 119 patients of all ages and suffering from very various grades of illness; all stood the injection without trouble. No thromboses have yet been observed. The technique of injection is as follows. A twenty cubic centimetre "Record" syringe with needle is boiled in distilled water. The total injection is made within three to five minutes and it is useful to have two or more twenty cubic centimetre syringes ready for use. The injection is made on the X ray table and the first exposure is made five to ten minutes after the end of the injection. In order to gain information of the excretory activity of the kidney two further skiagrams are made at half hour intervals. Before each exposure the bladder must be emptied to avoid the pelvic portion of the ureter being masked by the "Uroselectan" in the bladder. With good renal efficiency the excretion is at its height about this time (one to one and a half hours) and after three hours the "Uroselectan" will not throw a shadow any longer. With well developed insufficiency a useful picture is obtained only between six and twenty-four hours after injection and with high degrees of destruction, not at all.

A. VON LICHTENBERG (*Verhandlungen der Deutschen Gesellschaft für Urologie*, 1929) admits that at first he was very doubtful about the possibility of finding a suitable substance for intravenous pyelography. He declares now that the work of Roseno and Swick has made intravenous pyelography a clinical measure of no little value. The intravenous method is an excretory method and allows radiological estimation of the renal efficiency. In eighty-four cases of intravenous pyelography performed up to the present the author has checked the efficiency findings in thirty-five cases by operation and in one by autopsy. In all studied cases the urograms were applicable for clinical diagnosis. As yet no technical fallacy has had to be recorded. If no renal shadow was found, then either there was congenital absence of the organ or else the kidney was practically destroyed by disease or blockage of its outlet and consequent failure of function. The intravenous method has a very particular value in allowing uroscopic (screen) examinations of the pelvis and ureter, in order that the dynamics of the tract in cases of hydronephrosis, calculus blockage *et cetera* may be studied at leisure. In only 22 out of 61 cases had ureteric catheterization and ordinary pyelography to be added to the diagnostic measures in order that final conclusions might be read. The following may be taken as special indications for intravenous pyelography: (i) Where, for anatomical, pathological or technical reasons, cystoscopy, ureteric catheterization and pyelography cannot be carried out; (ii) in all cases of ureteric obstruction, when an opaque fluid cannot be injected past the blockage point. On the contrary, there lie in the untouched domain of pyelography all those cases in which, owing to poor or absent renal efficiency, no shadow is cast with the intravenous method.

Test of Cure in Gonorrhœa.

J. SCHERESCHEWSKY (*Deutsche Medizinische Wochenschrift*, February 14, 1930) describes the various methods of provoking a urethral discharge in cases of gonorrhœa without symptoms. Rejecting most of the local methods as too painful, he recommends the use of "Choleval." One cubic centimetre of a 2·5% solution is injected into the urethra at bedtime and after retention for thirty seconds is allowed to drain away. Next morning in positive cases there will be a thick yellowish discharge in which numerous gonococci can be found. The procedure is simple and painless and to be preferred to injections of gonococcal vaccines for the same purpose.

Special Abstract.

THE SKIN REACTIONS, BLOOD CHEMISTRY AND PHYSICAL STATUS OF "NORMAL" MEN AND OF CLINICAL PATIENTS.

AN important study has recently been made by William F. Petersen and Samuel A. Levinson of the skin reactions, blood chemistry and physical status of so-called normal men and of persons suffering from various diseases.[1] The results of the study are recorded in a monograph of approximately three hundred pages. An attempt has been made herein to record the more important observations and conclusions of the authors.

In discussing the general correlations in one hundred so-called normal men the authors point out that the clinical picture of disease is the reaction of the individual organ or the organism as a whole to an insult. Normally the insult provokes stimulation, but cellular inhibition, fatigue, paralysis and death may play a part in the total of the clinical picture. The insult may vary qualitatively and quantitatively and the individual response will be modified because of inherent differences in the inherited germ plasm; because of differences in the relative activity or inactivity of the glands of internal secretion; because of diet, age, fatigue, previous experience (sensitization or immunity), preexisting or concomitant disease, psychic states, climate and temperature. The degrees of reactivity of the different tissues used for examination are not necessarily coordinated. The reactivity of the epithelium may not correspond with that of the smooth musculature of the blood vessels and the latter may give no index of the status of the capillary endothelium. Such a study deals with individual constitutional reactivity. In the estimation of individual reactivity Eppinger and Hess used injections of epinephrine and classified the patients as "vagotonic" and "sympatheticotonic." This sharp division is not tenable. The relative reactivity of the smooth musculature of the blood vessels is not a criterion of the relative reactivity of other tissues. The purely histological concept of pathology is no longer adequate to the pace of correlated sciences. In pathology attention is being turned to molecular from cellular changes and in histology more use must be made of chemical and physical methods. Whether one studies inflammation in its physiological approaches or in manifestations seen in allergy or in default, as in severe infections, its fundamental components must be similar, amenable to control and therapeutically approachable by other than specific measures.

One hundred so-called normal men were taken and endeavours were made to see what relation their reactions to a stimulus or injury might bear to previous disease, to the blood chemistry, the basal metabolic rate, age, weight and other factors. Averages made from only one hundred individual reactions are not satisfactory. Normal individual variations are large and the possibility of error could not be excluded. The examinations made included:

1. Blood chemistry examinations—calcium, potassium, carbon dioxide combining power, sugar, cholesterol, globulin and total protein determinations.

2. A skin blister was caused by cantharides and the relative permeability of the capillaries and the blister time in hours were determined. The capillary permeability was estimated by the ratio of the protein in the blister to that in the capillary blood.

3. The basal metabolic rate and the weight-length ratio were determined.

4. The reaction to subcutaneous injection of epinephrine, as shown by the pulse rate and blood pressure, was determined.

5. The reaction to the Kromayer lamp was determined, the result being shown in the time of the first appearance of erythema after an application of the light for thirty seconds to the forearm.

6. The reaction to ice was revealed in the time of appearance of erythema after an application to the chest wall.

7. Muscle reactions were shown by the threshold of electric current in milliampères that would provoke reactivity.

8. Resistance of the moist skin to the passage of a direct current of electricity of low ampèrage was determined in terms of megohms per square centimetre.

9. Reactions to intracutaneous injections were estimated by the size of the wheal and the flare for solutions of morphine, epinephrine, thyroxine and caffeine (in different concentrations).

10. Röntgenograms of the chest were taken to ascertain the presence of active or healed tuberculosis and the condition of the heart and great vessels.

11. A physical examination was made and a history taken, stress being laid on a history of sensitization, of previous infectious diseases, alcoholism and amount of hard labour performed.

12. A Wassermann test was made.

13. The urine and skin capillaries were examined.

The authors have previously shown that capillary permeability is increased in patients with exophthalmic goitre, in those with severe intoxications and in sympatheticotonic persons. Athletes and persons with certain kidney diseases showed lower permeability. With increasing permeability there is increased sensitivity to epinephrine. The authors use the ratio capillary permeability/blister time as an index and the term "inflammatory index" for the quotient. The average inflammatory index was 8·2. Thus:

$$\frac{\text{Average permeability (62)}}{\text{Average blister time (7·5)}} = 8{\cdot}2$$

Miscellaneous patients, suffering from exophthalmic goitre, glaucoma, diseases of the skin and certain vascular diseases (Raynaud's and Buerger's diseases) were next compared with the "normal" men. The average capillary permeability was 62 for the normal group. At the end of the scale, indicating higher permeability, were more persons with distinct capillary changes such as granulations and dilatations. Healed tuberculosis was found at all levels. Persons with X ray evidence of tuberculosis (not necessarily clinically active) were found at the normal and lower levels of permeability. In those with clinically active tuberculosis the tendency was towards greater permeability with progression of the disease. Increased permeability, coincident with exophthalmic goitre, was apparent. The group with a high inflammatory index included those with urticaria, angioneurotic œdema and exophthalmic goitre. At the low end of the scale were persons with arteriosclerosis, capillary changes, glaucoma and active and healed tuberculosis. The so-called "nervous" group seemed to be associated with changes in the potassium/calcium ratios. Possibly the changes in the ratios are due to the nervous conditions rather than their cause. Perhaps some of the symptoms may result from an alteration of the salt balance. Certain disturbances closely associated with a vascular supply were definitely connected with an alteration in the potassium/calcium ratio. These took the form of lesions of the skin and gastro-intestinal tract, respiratory diseases (asthma and hay fever) and glaucoma. A change in this ratio may influence the permeability of the endothelial cells, resulting in instability with sudden alterations, producing œdema and other local disturbances of cell function. The lowest amount of serum calcium occurred in a patient with active tuberculosis. The greatest amount was in a patient with healed tuberculosis. Patients with exophthalmic goitre had the highest basal metabolic rates and were sympatheticotonic. Those with active tuberculosis had high basal metabolic rates and were largely vagotonic. As regards resistance of the skin to electric currents, the majority of persons with X ray evidence of active tuberculosis were on the side of low resistance, as were also those with exophthalmic goitre. As regards muscle reactivity, in the series examined the group with the greatest irritability included a number of persons with

[1] *Archives of Pathology*, Volume IX, January, 1930, Part ii.

active tuberculosis as well as sensitized persons. In the group with low irritability were many with cardiovascular renal lesions and increased blood pressure. Those with the greatest irritability had more serum potassium and higher potassium/calcium ratios.

Part IV of the work deals with the patient with exophthalmic goitre and the "nervous" patient. The relative amount of protein in the cantharides blister was high in exophthalmic goitre. This was regarded as evidence of increased permeability of the capillaries. After thyreoidectomy the permeability was diminished in all cases. Increased permeability seemed directly related to thyreoid activity, but not necessarily to the factor responsible for increased basal metabolism. In the exophthalmic patient there was generally an increase in serum calcium, but the potassium/calcium ratio remained about 2. After thyreoidectomy both potassium and calcium diminished, but the ratio remained constant. Thyreoidectomy consisted in removal of about two-thirds of the thyreoid tissue, with both upper parathyreoids. The resistance of the skin to electric currents was reduced in exophthalmic patients; after operation there was a return to normal. One cannot make a mere augmented secretion of the thyreoid responsible for all the alterations in the autonomic reactions of the exophthalmic patient. If this were the only factor, they should all return toward the normal after operation. But there is sometimes a distinct difference in the reactions—in one case a return of the basal metabolic rate to normal and in another a persisting increase in the rate. Many of the other altered reactions do not return to normal. In patients with exophthalmic goitre factors other than those responsible for the increased basal metabolic rate must be considered.

Full details are given concerning patients suffering from glaucoma and also of sensitized persons and those with diseases of the skin. Menstrual urticaria is associated with a relative acidosis.

Eighty-three tuberculous patients were studied. A study of the resistance to tuberculous infection, conditioned by innumerable biological interactions seems to offer insurmountable difficulties. The cellular factors, the effects of sensitization, intercellular and intracellular digestion, humoral and fixed antibodies, endocrine, vitamin and chemical equilibriums must be considered; as well as chance pathological complications, constitutional inequalities, peripheral and visceral autonomic vascular and metabolic responses, emotional factors and environmental influences as well as differences in the virus itself. In overcoming the disease the organism has two means, resorption (digestion) and encapsulation (insulation). Early in the disease the former may be successful. Even in well advanced disease it may play an important rôle. But from the clinical standpoint it appears that inhibition of digestion, the suppression of inflammatory response, is more important for the patient. The patients from the Municipal Sanitarium were in various stages of clinical activity. A case of far advanced tuberculosis may be chronic and associated with relatively high resistance. A patient with minimal manifestations may go on to death in a short time. Lower capillary permeability was associated with a good prognosis. Persons with "silent" lesions had low permeability. Occasionally increased permeability was found in persons who were gaining, but generally it was coincident with progression of the disease. The question is raised as to whether increased permeability brought about progression of the disease or whether it was due to the clinical condition. The status of the capillary wall is labile, depending on the activity of the local tissues, on endocrine and chemical equilibriums and on autonomic disturbances. Acute intoxications increase permeability. Tuberculin may perhaps increase or diminish it. Probably the status of the capillary wall may be the determining factor on which depends dissemination or fixation. In a case with a favourable prognosis the inflammatory index was low. Such a lowering of the inflammatory response may benefit the patient by protecting him from too great an absorption of toxic matter. In infections with good prognosis there was a high blood calcium level. Calcium diminished with progression of the disease. Serum globulin was high in infections with poor prognosis and there was a larger value for the cholesterol/lecithin ratio. In such infections there was also a shortening of the McClure-Aldrich sodium chloride disappearance time. Prognosis was better in cases with delayed absorption. After injection of epinephrine the results in rapidly fatal cases were vagotonic, but generally sympatheticotonic in those patients who lived longest. The size of the reaction at the site of injection of tuberculin, as measured after twenty-four hours, varied. There were more cases of minimal manifestations in the group with small reactions and more far advanced cases in those with large reactions.

Theoretically three major lines of approach to the problem of tuberculosis can be noted. First, there is the field of specific immunity with the attack directed towards the virus. The second is chemotherapeutic in the sense of Ehrlich. Here the goal is the specific destruction of the virus, the reaction of the tissues being considered only to the degree that the agent shall not be too toxic. Seifert and others, however, would place greater emphasis on the reaction of the tissues to the so-called specific therapeutic agent. A third line of approach recognizes the reaction of the tissues, with the aim of promoting beneficial and suppressing unfavourable reactions. Schade found the reaction of tuberculous tissue to be toward the acid side, exactly at the optimum for the growth of the tubercle bacillus. The tissues normally respond to an acid reaction by dilatation and increased permeability. Epinephrine makes the capillaries less permeable. It, however, produces sympathetic effects and the sympatheticotonic person has more permeable capillaries, with sometimes low blood pressure. Thus injection of epinephrine may make the capillaries more permeable and lower the blood pressure. The vagotonic person usually has higher blood pressure and less permeable capillaries. Yet stimulation of the parasympathetic nerves commonly results in dilatation of the vessels and increased permeability. Relatively impermeable capillaries are usually found with chronic tuberculosis and greater permeability with active tuberculosis. Specific agents (hetol, tuberculin and sodium aurothiosulphate) act on the capillaries, rendering them more permeable for a time, later diminishing their permeability. The focal reaction depends on changes in the capillary permeability about the focus. Various biological influences (menstruation and the effects of season) which are associated with increased permeability and autonomic instability, are often associated with clinical evidence of activation. The conclusion might be warranted that increased capillary permeability unfavourably influences a tuberculous process. Alkalinization must make the tissues less permeable; local acidosis causes capillary dilatation and makes the endothelial cells more permeable. Changes produced by the administration of alkalis are never pronounced. There may be, however, differences in the effect in different persons. Both epinephrine and pituitary gland extract diminish permeability of the cells. The former, however, especially in the tuberculous, may produce paradoxical effects. The effect of pituitrin is apparent even on irritated capillaries when epinephrine fails.

The value of calcium administration is problematical. The fault is not necessarily calcium deficiency in the fluids, but a lack of fixation of calcium by the cells. A mere administration of calcium, increasing the calcium in the plasma can have little effect. Nor will use of parathyreoid gland be of avail, because in that case one is merely taking calcium from tissue reserves to increase it in the body fluids. Yet it may be of use when there is a low plasma calcium level and the tissues are able to fix the excessive calcium offered to them. Diminution of the activity of the sex glands in women is of importance, not only with the idea of avoidance of pregnancy, but on the basis that menstruation is apt to be associated with activation of the tuberculous process. The relative benignity of tuberculosis in castrated animals and men has been established. Activation of tuberculosis has been described following administration of thyreoid extract. On general principles lowering of the metabolic rate may be useful where one is dealing with an increase in the rate due to the infection.

Finally there was considered the production of a peripherally localized autonomic disturbance. The close autonomic interrelation of the splanchnic area and the peripheral (skin and muscle) region has been demonstrated. Stimulation of the one (parasympathetic status) is followed by sympathetic orientation in the other area. If the skin be made parasympathetic by stimulation (as by a burn or intracutaneous injection), the splanchnic area becomes sympathetic in its general tonus. The vascular status in peritoneal tuberculosis might be altered by producing a superficial effect on the skin, as by a burn caused by ultra-violet rays. There is a series of measures, which, singly or in combination, might influence the general reaction of a tuberculous person by altering the rate of absorption of toxic material from the foci of disease. There is presumptive evidence that at the same time the soil may be made less favourable for the growth of the organism for the following reason. The reaction at which the tubercle bacilli grow best in the human organism is on the acid side of neutrality. If one be able to alkalinize the tissues or create a tendency towards restoration of the alkaline side, the soil might be made less favourable.

Study of the Individual Constitution.

In discussing their results the authors point out that there are differences in the reactivity of the skin and mucous membranes, respiratory as well as gastro-intestinal, which determine in a large measure one's liability to infection. The study of the individual constitution has been investigated from two important non-medical sides. The earlier anthropologists sought to formulate definite racial groups. More recent studies have been broader and have sought to establish general types irrespective of racial grouping. To this comes added impulse through the modern study of heredity. Medical practitioners have sought to use these lines of approach and have applied them particularly to non-infectious disease in which heredity and constitution have never been quite denied. Emphasis on anthropological genetic phases savours too much of predetermination to be wholly acceptable to the medical observer. The conditional factors of environment, tissue experience, preceding infection, food, light, autonomic training and of climate must be of equal importance in variable susceptibility to infection and resistance to one already established. "Constitution" as a factor in disposition to disease means different things to different investigators. We may regard constitution as a synthesis and vital unification (the "individuality" differential") or examine everything from a purely anthropometric view. Bauer discounted the value of the anthropometric "indices" and limited the term to the "genotype." Pfaundler stressed the importance of the environmental (conditional) forces, that is the "paratype." Many medical investigators have sought to group persons according to the presumptive reactivity of their glands of internal secretion and speak of the hypophyseal, thyreoid or adrenal types. Straus stressed the idea of personality, the term "Syzgiologie" being coined for the new field. This point of view emphasizes the periphery of the organism, the region in which the metabolic processes are going on and particularly the exchange between the cell and its environment, that is the membrane of the cell. Kraus came to the conception of a phylogenetically long-established "Tiefen-person," that individualism of the most vital and most profound sort, a vital component of the constitutionally and primarily ordained protoplasm. This fundamental individualism is to be placed in contrast with the centrally organized and younger cortical personality. Daniélopolu also stressed the importance of the periphery, that is the terminal organ, as the site at which the basic orientation of the individual is determined. Bauer grouped persons as: (i) Slender (dolicho or asthenic type, with small heart), (ii) normal (normotype) and (iii) heavy (brachy or pyknic type). The French have associated the first group with lessened resistance to pulmonary infections; the latter group with gout, rheumatism, diabetes and arteriosclerosis. In the material studied the authors disregarded anthropometric factors and used only the grouping of slender, normal and heavy as based on the weight-length ratio.

The Slender (Asthenic) versus the Heavy Person.

The authors raise the question as to whether the classification of slender (asthenic) and heavy persons has any necessary relation to the "sympatheticotonic" or "vagotonic" types. The slender persons have a low potassium/calcium ratio, an increased vascular reaction to epinephrine, lower cholesterol, less reaction of the skin to epinephrine and a greater reaction of the skin to thyroxine and caffeine. The slender, as contrasted with the heavy, person has an increased basal metabolic rate, more irritable musculature, slightly lower carbon dioxide combining power of the serum, higher resistance of the skin to the electrical current and a longer Kromayer light reaction time. The sympatheticotonic person, in contradistinction to the vagotonic, has no difference in the basal metabolic rate, less muscular irritability, a lower carbon dioxide combining power, no difference in the resistance of the skin to electrical current and a slightly slower Kromayer light reaction time. The blood pressure is lower.

Autonomic Equilibrium.

Asher stated that the individual cells of the body are functionally distinct individuals, regulating their existence primarily through chemical means (involving ionic, molecular, hormone and catalytic processes) and, secondly, through nerve impulses (either central or vegetative). Daniélopolu postulated three laws concerning reactions of the autonomic response which bear on the sympatheticotonic and vagotonic conception. Substances which influence one factor, also influence the other—they are amphotropic. With eye pressure it was shown that impulses proceed along the parasympathetic to the heart and along the sympathetic to the gastro-intestinal tract. Daniélopolu concluded that the vegetative tonus is maintained by amphotropic factors, one peripheral and humoral and the other centrifugal from the sympathetic and parasympathetic centres. When the tonus of one side is increased, the other automatically follows. In clinical medicine we frequently see an apparent overbalance of the one system. Daniélopolu believed that the preponderance depended on the intensity of the impulses. In pharmacological experiments we know the importance of the size of the dose of the autonomic drugs. The effect on an organ depends on the general vegetative status of the entire organism. A minimal dose of epinephrine which in the normal person results in parasympathetic stimulation (lowered blood pressure and slowed heart rhythm), causes increased blood pressure and pulse rate in a sympatheticotonic person. On the other hand the dose which in a normal person causes increased blood pressure and pulse rate, elicits a parasympathetic effect on the vagotonic person. These paradoxical or inverted effects are well known.

Schilf's View of Autonomic Antagonists.

Schilf pointed out that the idea of a balanced nervous mechanism in the sense of a sympathetic-parasympathetic central antagonism is not true for all tissues, there being a number in which only a sympathetic or a parasympathetic innervation can be demonstrated. We know of only sympathetic nerves for the sweat glands. We know of sympathetic nerves for the blood vessels. In only a limited region can parasympathetic (dilator) innervation be demonstrated. The assumption that because sympathetic fibres are vasoconstricting, vasodilatation must be accomplished by parasympathetic fibres is not established and is probably fallacious. Schilf held that the problem of nerve control of vascular dilatation is still unsolved. The effect of a nerve impulse to an organ depends on the state of that organ. There is a possibility that sympathetic nerves are not only afferent, but also efferent and may play a considerable rôle in the periodic differences in the sensitivity to impulses.

The Chemical Equilibrium: The Rôle of Potassium and Calcium and the Hydrogen Ion Concentration.

With cellular activity the calcium concentration of the cell membrane is diminished. Calcium leaves the cell and there is a relative increase in the potassium of the cell. The cell is more permeable and the protein becomes

hydrated. From this stage of activity the opposite extreme of rest is reached with, apparently, a relative increase of calcium at the cell surface, relative impermeability and dehydration. Calcium and potassium concentrations indicate the swing of the pendulum of cellular activity. The alteration of ionic concentration may ultimately bring about an abnormal vegetative reaction; but we may find unipotential autonomic reactions without a corresponding blood chemical picture. Dresel assumed that the blood of a vagotonic person was more alkaline and contrasts the resultant ionic states as follows.

Vagotonic status.—Tissues alkaline: little calcium colloid, much potassium colloid. Blood alkaline: little ionized calcium, much bound calcium, little potassium.

Sympatheticotonic status.—Tissues acid: much calcium colloid, little potassium colloid. Blood acid: much ionizable calcium, little bound calcium, much potassium.

Accordingly the vagotonic person should have a low potassium/calcium ratio, the physiological effects, however, being modified by differences in ionization. There is much confusion of the terminology involved. Our present classification of vagotonic and sympatheticotonic should be given up unless we are cognizant of the various implications. When the sympathetic status has been spoken of, there has been indicated a state of tissue rest, contracted vessels, calcium accumulation and dehydration. Where parasympathetic status has been spoken of, it has indicated the state of the tissues with dilated capillaries, tissue activation, calcium dissimilation and hydration. Zondek stated that the vagus effect was like the potassium effect, but he never insisted that they were identical. In clinical conditions, such as urticaria, the calcium level may be normal and yet the administration of calcium may at times be useful, at other times without effect.

Rôle of Cholesterol.

There seems to be some basis for the belief that cholesterol is involved as an intermediary in the ionic autonomic mechanism. Here also we are dealing with a confusion resulting from the presumable effects of cholesterol as a component of the cell membrane and as free in the blood stream. Possibly an increase in the cell membrane can occur at the same time as an increase in the blood. Possibly also with an active exchange going on between the two, high membrane content may be associated with low plasma content and *vice versa*. Mjassnikow associated increase in blood cholesterol with hyperasthenia, not only in the apparently normal condition, but also in the associated diseases of this constitutional type (gout, obesity, hypertonia, asthma, hay fever and gall stones). Dresel and Sternheimer placed cholesterol in the sympatheticotonic group, counterbalanced by lecithin as a parasympathetic agent. Glaser found that the injection of epinephrine increased the amount of cholesterol in the serum.

Tuberculosis.

Constitution.

The human body reacts in two different ways to tuberculous infection. One results in a relatively benign process, developing slowly and becoming quiescent through cicatrization; the other results in an exudative process with fluid effusion, rapid progression and dissolution of the tissues. We meet every phase of resistance between these extremes—extremes which depend on differences in the irritability of the tissues. The greater the irritability, the more marked is the response and the greater the tendency to an exudative process. The less the irritability, the greater is the tendency to cicatrization. The problem involves the autonomic status of the organism as a whole and of the various organs, and the question of variations in the vegetative status as modified by the infection. Even the acutely exudative process may result in utter destruction—digestion and removal of the virus and inflammatory exudate. Probably the latter is a common method of disposal of the smaller lesions. Bourchardt discussed the reactivity of the tissues to tuberculous infection in relation to constitutional types. In the *status irritabilis* of Wunderlich he found more localization in the mucous and serous membranes and skin, with good connective tissue reactions and a relatively good prognosis. In the "asthenic" type (Stiller) or the lymphatic-arthritic type (Pfaundler) there is apparently a lessened reaction; but the value of such classifications is doubtful. The tuberculous adult who is classed as of the "asthenic" or "phthisical" type, must often be what he is (physically, physiologically and psychically) because of this infection.

The Autonomic Status and Tuberculous Infection.

Pottenger has studied symptomatology with particular relation to the underlying autonomic alteration. There is no uncertainty concerning this phase of the problem, nor is there any question concerning the general autonomic instability as expressed in the reactions of the vasomotor, gastro-intestinal and mental apparatus. Redeker has reemphasized the general psychic instability as part of the reaction of the tissues to the invading organism. Changes in general cellular permeability apparently alter chronaxia. Förster has shown that it is lowered by epinephrine, calcium chloride and parathyreoid gland and is increased by hydrochloric acid, pilocarpine, choline and thyroxine. Both peripheral and cerebral changes in permeability apparently have a direct influence on the nervous response. Deutsch and Hoffman stated that a patient with early tuberculosis gives a sympatheticotonic reaction to epinephrine. Later the reaction is more irregular with vagotonia preponderating. Guth noticed that tuberculotoxin acts amphotropically, first irritating both components, later leading to a depression with emphasis on the vagus side. Most of the exudative patients were vagotonic; most of the productive types, sympatheticotonic. Glaser's study indicates that the chronic tuberculous person is sympatheticotonic. Pende concluded that if the tuberculous person be first sympatheticotonic and then vagotonic, the prognosis is poor; whereas, if he be first vagotonic, the process is generally benign. The autonomic status as judged on the basis of the blood pressure response to epinephrine in the authors' series, indicated a lessening of the reactivity of the tuberculous group as contrasted with the hundred "normal" persons. Of the patients who died, those who lived longest, had the more marked sympatheticotonic reactions to tuberculin. Of those who were losing weight at the time of examination but subsequently improved, the majority showed a sympatheticotonic reaction. But the terms vagotonic and sympatheticotonic are too conflicting and too broad to be useful. About a tuberculous focus there exists a zone of tissue stimulation (irritation) which may range from slight and transient effects, through all stages of fatigue to death. In the stage of stimulation the metabolic rate, acidity, permeability, cellular exchange and enzymatic (digestive) processes are increased. Calcium leaves the tissues and sodium and potassium enter. This is an abnormal status of the vegetative balance in which the autonomic nervous system, the ionic equilibrium, the hormones and the tissue metabolites play their rôles.

The Vascular Reaction to Tuberculin.

The reaction of tuberculous tissue is on the acid side, at the optimum for growth of the tubercle bacillus. Peripheral dilatation of the blood vessels depends, not on central vasomotor regulation, but on the peripheral effects of dissimilation, including increased acidity, as well as the effects of histamine and acetylcholine. Tuberculin stimulates the normal organism. In the tuberculous animal the stimulation may proceed to fatigue. Tuberculin causes the normal vessels to dilate, with contraction following. In the tuberculous animal the preliminary dilatation persists. Therapeutic agents useful in tuberculosis are those most often directly active on the capillaries. All the therapeutic agents of the "reactive" series (tuberculin, sodium aurothiosulphate and hetol) first make the tissues more permeable. Later the tissues become less permeable for a considerable time. The focal reaction following injection of minute doses of the agent is a reaction depending on changes in the capillary permeability about the tuberculous focus. Biological processes (menstrual cycle, effects of season) which are associated with increase in capillary permeability and autonomic imbalance, are apt to be

associated with clinical activation. Clinically advancing tuberculosis is associated with increased capillary permeability, healed lesions with diminished permeability. It might be concluded that increase in capillary permeability, however produced, would unfavourably influence a tuberculous lesion and that diminished permeability would be associated with improvement.

Calcium.

Calcium metabolism must be regarded as closely associated with the clinical condition of the patient. There were more deaths in the group with low calcium. Those with healed tuberculous lesions and those with good prognosis had a higher calcium value. Those with stationary disease had lower calcium. In those with poor prognosis the calcium level again rose, owing in the authors' opinion to the probability that, with a negative balance, calcium was mobilized from the tissues. Sternberg found lower serum calcium in the most advanced cases, Schaefer an increase in the calcium in the lung in chronic tuberculosis. Hoyle found an early increase in calcium in rabbits infected with tuberculosis, with a terminal decline. Tuberculosis in the rabbit is decidedly different from that in man. Henner observed that when calcum dust was used, tuberculous animals showed less involvement than animals exposed to other dust and less than control animals not exposed to dust. Siegel stated that he obtained improvement in half of his cases of tuberculosis with calcium inhalation.

Cholesterol.

It has been noted that cholesterol usually diminishes with progressive tuberculosis. Increasing serum cholesterol probably plays some part in prolonging the life of experimentally infected guinea-pigs. The association has been noted of low cholesterol with poor prognosis in tuberculosis.

Reactivity of the Skin.

The fact is generally recognized that, apart from the so-called specific factor, the degree of reactivity depends on the status of the skin, that is, that the systemic factors play a decided rôle. The reactivity to tuberculin diminishes during the terminal stages of tuberculosis, during intercurrent disease and with "desensitization" due to tuberculin therapy or as a result of non-specific injections. Kauffmann observed that when he placed cantharides on the skin of a patient with pneumonia, distinct changes of reactivity could be seen. During the febrile stage there was delayed or absent reaction, with defervescence a marked reaction, after defervescence a period of transition during the following ten days to a maximum monocytic reaction in the exudate; lastly, for a varying interval another period of inhibition or delayed reactivity. During the febrile stage there exists a peripheral inhibition (vasoconstriction). Cantharides can act on the cells, but little or no exudate forms. The direct injury to the cells is great, because there is no dilution. Applied to tuberculosis and the tuberculin reaction it means that during the febrile stage of an intercurrent disease, the tuberculin reaction is inhibited, because of change in the status of the skin. During the terminal stages of tuberculosis itself this factor again operates. During the period corresponding to defervescence in pneumonia, when vascular dilatation is accentuated, this peripheral factor is negated and vigorous reaction occurs. Applied to the tuberculin reaction, this corresponds to the period of maximal response when sensitization prevails, at a time during which peripheral vasodilatation is compensating for the increased metabolism going on in the body. The autonomic skin function is practically normal as far as lability is concerned. In the pneumonic patient after the crisis a period supervenes during which the skin again is non-reactive. The tissue cells have changed. The cell membranes are no longer irritated to the same degree by the same amount of the irritant. The cell membranes have become less permeable. Applied to tuberculosis, we see the same picture during periods of relative quiescence of the lesions, with recovery, after tuberculin treatment or after a series of relatively bland non-specific injections. These are wholly non-specific effects which influence the reactivity of the skin in general.

Leucocytic Reaction: The Effects of Intracutaneous Injection of a Bland Protein on the Leucocytic Curve.

Intracutaneous injections evoke systemic effects through the agency of the injected solution and through stimulation of the skin. Perhaps this stimulation of the skin is associated with liberation of histamine. When patients are classified on the basis of increasing, stationary or decreasing weight, the leucocytic reaction in the losing group is that of a marked primary leucopenia following the intracutaneous injection. Such a group shows coincident lowering of blood pressure. This the authors ascribed to the fact that in this group the splanchnic vascular bed is more easily thrown out of balance with consequent accentuation of splanchnic stimulation and dilatation and a resulting accumulation of leucocytes in the splanchnic area.

Therapeutic Considerations.

Pilocarpine which makes the capillaries more permeable, may be followed by dissemination of tuberculosis. Epinephrine which is diphasic and amphotropic, may, when it makes the capillaries less permeable, diminish clinical activity; or it may make the capillaries more permeable and increase clinical activity. Pituitrin which apparently acts more specifically on the cell membrane in lessening permeability, may lessen clinical activity. Alkalosis is apparently useful and stimulation of the skin by means of a skin burn which theoretically would result in a peripheral dilatation, and splanchnic constriction may also be useful. Stimulating substances (tuberculin, hetol, sodium aurothiosulphate) are active in sufficiently large doses by increasing permeability, and with large doses injury almost results. In small doses they are sometimes useful, because the transient stimulation and increased permeability are followed by a reversal, with persistent impermeability.

Special Articles on Diagnosis.

Contributed by Request.

V.

IRITIS.

IN any examination of the eye the diagnosis of iritis is very important for the following reason. The patient usually has a bloodshot eye and the duty lies with the physician to discriminate between a comparatively innocuous external infection or injury and an extremely serious internal disease of the eye. On careful examination certain features may be observed which practically exclude the presence of iritis. There may be seen the bright glistening surface of the iris, with its clear distinctive colour, matching its fellow, and with the aid of a binocular loupe and oblique illumination you may see the beautiful pattern of its trabeculæ, its hollows and crypts, and look into their depths. The pupil is shining and black, the circle is sharply cut out and dilates and contracts smartly as the light is withdrawn and applied. And all this may be present along with an inflamed and pussy conjunctiva. This picture of the healthy iris it is essential to keep in mind; its presence before you, backed up by reasonable experience, is sufficient to exclude iritis.

The patient's statement should be heard with respect. Besides the redness, he complains usually of some degree of pain and some diminution of sight. He may volunteer the information that he has iritis, that he has had several previous attacks and suffers from rheumatism. He complains also of intolerance to light and of the eye watering, but denies the presence of mattery discharge or the lids sticking together after sleep. On examination one may find the whole conjunctiva intensely injected, or the redness may be confined to the pericorneal area and assume a pinkish or violet hue. This ciliary injection, as it is called, is always a danger signal of intraocular trouble. Next one is struck with the altered colour of the iris; it is dull and dirty looking—"muddy" is the classical

description. On closer inspection it is seen to be swollen, the fine pattern is lost, there may be spots of blood on it, and surrounding it is hazy exudation. The pupil is rather small and perhaps irregular, it reacts very sluggishly to light and very often not at all. The black of the pupil is dulled with exudate. The posterior surface of the cornea should be examined for the round dots of keratitic precipitates, formerly called *keratitis punctata*. Their presence is positive evidence of uveal disease. When, therefore, these signs are definitely present, namely, small fixed pupil, muddy iris and exudation in the anterior chamber, the diagnosis of iritis is conclusive. But if the signs are not so definite as we might wish, or if any doubt still remains in our mind, it is advisable to instil a few drops of atropine solution. The reaction of the pupil to atropine is most illuminating. Should the pupil after a quarter or half an hour dilate fully and regularly, leaving behind no iridic deposit on the lens capsule, we may assume either that we were mistaken in our suspicion of iritis or that, if iritis is present, it is not of a stubborn nature and that the first correct step in treatment has been taken. But more likely it will be found that atropine does not easily dilate the pupil. After several drops in the course of a few hours it may be noted that the pupil begins to dilate irregularly, some parts dilated and others not. Where no dilatation occurs the iris is bound down by adhesions to the lens capsule—posterior synechia. Very often where dilatation has occurred, synechiæ have been broken down and have left iridic deposits on the lens. With this evidence the diagnosis of iritis is absolute.

If one is skilled with the slit-lamp there may be seen, earlier than these obvious changes, some "bedewing" of the back of the cornea, and increased cellular elements in the aqueous humour.

With a correct mental picture of the healthy and diseased iris it should not be difficult to distinguish iritis from other congestive conditions.

Acute conjunctivitis is characterized by its profuse mattery discharge; the iris and pupil remain normal. Children are very often affected, whereas iritis is a disease of mid-adult life.

Corneal ulcer has been mistaken for iritis, but only through incomplete examination. Careful inspection of the cornea with proper illumination will reveal the lesion, or if there is any doubt a drop of fluorescin solution instilled into the eye and washed out with water will map out the ulcer with a green stain.

Acute glaucoma is distinguished by its intense pain radiating all over the head and often associated with vomiting, by the extreme hardness of the eyeball, dilatation of the pupil, steaminess of the cornea and shallowness of the anterior chamber. The large, inactive and often oval pupil by itself should distinguish this condition from iritis. The glaucoma patient is usually in the region of sixty years of age.

Occasionally increased intraocular tension occurs in iritis. This is a difficult combination, but very often it only emphasizes the urgency of treating the iritis.

J. C. HALLIDAY, M.B., Ch.M. (Sydney), F.R.C.S. (Edin.), D.P.H. (Cambridge),
Honorary Ophthalmic Surgeon, Royal Prince Alfred Hospital, Sydney.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION, IN CONJUNCTION WITH THE SECTION OF OBSTETRICS AND GYNÆCOLOGY, THE SECTION OF MEDICINE, THE SECTION OF NEUROLOGY AND PSYCHIATRY, AND THE SECTION OF HYGIENE AND PREVENTIVE MEDICINE, was held at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, on May 29, 1930, DR. E. M. HUMPHERY, the President, in the chair.

Indications for the Induction of Abortion.

DR. H. C. E. DONOVAN read a paper entitled: "Indications for Induction of Abortion in Heart Disease" (see page 144).

DR. E. W. FAIRFAX read a paper entitled: "Indications for Induction of Abortion in Pulmonary Tuberculosis" (see page 143).

PROFESSOR W. S. DAWSON read a paper entitled: "The Induction of Abortion and Premature Labour in Mental Disorder" (see page 147).

DR. R. I. FURBER thanked the three speakers for the clear way in which they had presented their views. He said that De Lee considered hyperemesis to be an important factor in arriving at a decision to terminate pregnancy, especially in pulmonary tuberculosis, and with this Dr. Furber was in entire agreement. He thought that Dr. Fairfax's fourth group was one of the most important that he had mentioned. Very few women in whom termination of pregnancy was indicated, would be able to have a child later on. They would have to be warned against future pregnancies. With pulmonary tuberculosis it was possible that many patients would recover and would later on be able to continue a pregnancy to term. In coming to a decision as to whether sterilization should be undertaken, the greatest care had to be exercised because its adoption would affect the whole treatment of the patient's condition. Dr. Furber admitted that he stood in fear of induction of abortion. The three main dangers associated with it were loss of blood, sepsis and perforation of the uterus. De Lee stated that induction of abortion was the most dangerous of all obstetrical operations and with this Dr. Furber agreed. In deciding on the method to be used in termination of pregnancy, the decision rested largely on whether the patient was likely to have further children. In these circumstances, when the patient was seen in the early stages of pregnancy, he preferred to undertake an abdominal operation with hysterotomy and section of the tubes or else hysterectomy rather than to induce abortion. If abortion were induced, the patient would become pregnant again and would go on having one abortion after the other. Dr. Furber illustrated his remarks by reference to a patient with aortic disease and said that it was much better to finalize the matter and to sterilize the patient. The question did not often arise in the later stages of pregnancy, for as a rule the patient's disease became evident in the early stages. Dr. Furber went on to say that other factors had to be considered. Frequently consultants failed to agree on the type of treatment to be adopted. He recalled an example in which a patient, aged forty-two years, had been seen by two physicians. One had asked for hysterectomy, but the senior had opposed this view. The woman had desired sterilization. The senior physician had wanted abortion and this had been done, but Dr. Furber thought that in this instance hysterectomy would have been preferable. Again, the loss of the uterus had to be put to the woman and weighed carefully. They knew that little, if any, harm resulted from a removal of the uterus, but many women had sentimental objections to the loss of the organ. In referring to Professor Dawson's paper Dr. Furber said that he understood Professor Dawson to be an advocate of permanent sterilization and Dr. Furber was all on his side. There was no certain method of prevention of conception. The condom was objectionable and no matter what method was used accidents would happen and the woman become pregnant again. Dr. Furber concluded his remarks by reiterating his statement that induction of abortion was dangerous and by saying that he had seen the best men perforate the uterus.

DR. A. J. GIBSON thanked the speakers for the way in which they had handled a series of interesting topics. As far as pulmonary tuberculosis was concerned he thought that they should rely on the opinion of a physician. The obstetrician saw the patient during pregnancy and later on often lost sight of the patient and so got a false idea of the real state of affairs; for this reason the physician should take the larger share in determining whether pregnancy should be terminated or not. In heart disease the obstetrician should take the greater share in arriving at the decision, for he had the difficulties of labour to deal with. Dr. Gibson always felt that if the patient had a

chronic heart lesion which was well compensated, especially if she had had no children, it was reasonable to allow pregnancy to occur, if the patient could be kept under observation until term. As a rule everything went well, but unfortunately not always. Sometimes at six or seven months signs of heart failure were manifest which did not respond to treatment, and it was difficult to know what to do, whether to induce abortion or to allow the fœtus to become viable and to do Cæsarean section. In the later stages of pregnancy he thought that when heart failure occurred in certain cases Cæsarean section and sterilization were best. In the early months when heart disease was present, the question of inducing abortion only or sterilizing the patient depended on her condition. If the patient's heart was bad she should have no more children. If abdominal section was more than the patient could stand, it was better to empty the uterus at one stage and when the patient had recovered, to advise sterilization by abdominal section.

In regard to mental disease he had hoped for more information. It was often very difficult to know what to do. He referred to one patient who had three children, two daughters and a son. The son had become ill and died and the mother had become very distressed. During the next pregnancy the patient had been well, but after the birth of the child, a daughter, puerperal insanity had occurred and she had been in a depressed state for months. Eventually she had recovered and had again become pregnant. Signs of mental instability had manifested themselves and the patient had been sent to Dr. Gibson with a request that pregnancy should be terminated. Dr. Gibson had thought that if a son were born the patient's condition would be different. Dr. Andrew Davidson had agreed that there were not sufficient grounds for termination of the pregnancy. Treatment of the patient had been continued, a son and heir had been born and the patient had been quite well ever since. Patients who were suffering from depression, often came in the early stages of pregnancy asking that the pregnancy should be terminated. Dr. Gibson thought that if the medical practitioner took a determined stand and told the patient that the pregnancy had to go on, the patient would realize the position and her mental condition would improve. When a family history of insanity complicated matters, if complications occurred with a long, difficult labour or if sepsis occurred during the puerperium, mental derangement might occur. In these circumstances it was imperative to take extra care in supervising the patient's condition and if any delay or difficulty in delivery occurred which threatened the life of the child, the advisability of performing Cæsarean section should be carefully considered. In these cases the loss of the child, especially if it were the first, in addition to other complications, toxæmia, trauma and sepsis, often decided the onset of puerperal insanity.

DR. RALPH WORRALL said that all the speakers had stressed the point of view of the patient. As far as the first speaker was concerned this was right, but with the other two it was not. In regard to heart disease the question to be considered was whether the patient had previously had failure of compensation. If she had had failure before, it would occur again. In order to determine whether compensation was well established, the best criterion was whether the patient could carry on the ordinary activities of life without breathlessness. Every woman with heart disease suffered grave risk in pregnancy; none was improved by pregnancy and most were seriously injured. The question which medical practitioners had to answer, was what they would do if the patient were of their own kith and kin. In regard to tuberculosis, importance should not only be attached to the effect on the woman, but they should also think of the effect of inheritance of vulnerability to tuberculosis on her offspring. He could not help thinking of Oliver Goldsmith's lines in "The Traveller":

> Yet oft a sigh prevails and sorrows fall
> To see the hoard of human bliss so small.

The medical profession should do what little it could to change this.

He agreed with the dictum that no single girl with pulmonary tuberculosis should marry, that no tuberculous married woman should have a child and that no tuberculous married woman who had a child should be allowed to suckle her baby or to become pregnant a second time.

He was most interested in Professor Dawson's paper, for he was more at variance with him. Professor Dawson thought that environment was all important. Dr. Worrall thought that the hereditary nature of insanity had been proved beyond question. He referred to one family of thirteen children; nine of them had been in a mental hospital. A cure of insanity was not a cure because there could be no cure of the tendency to transmit the taint to the offspring. There was nothing sadder than inheritance of an insane strain. No one should be allowed to transmit such a strain. Some time previously the Inspector-General of the Insane had stated in one of his reports that the mental hospitals of the State were all overcrowded and that 750 persons were "out on leave." Dr. Worrall had written a letter to *The Sydney Morning Herald* on the subject. He thought it appalling that 750 persons suffering from mental disorder were let loose to procreate their kind. He agreed with Professor Dawson that abortion should not be necessary. The feeble minded should be segregated and no one should be allowed to leave a mental hospital without undergoing sterilization. This was done in some States of America and in Australia where it was not done, the insane population was growing out of all proportion. If an insane person became pregnant, abortion should be produced. If an insane person was not pregnant, a warning against pregnancy should be made and the best way of insuring that pregnancy would not occur was to undertake sterilization. Dr. Worrall concluded by saying that he was afraid that opinions of this nature would carry no weight with the alienists.

DR. H. K. DENHAM said that he agreed with Dr. Fairfax that in deciding whether abortion should be induced or not the following points served as a most useful guide, namely, family history, previous obstetric history (if any), evidence of advancing disease, the duration of the disease and evidence that it had been in a quiescent stage for some time, the age of the patient, the type of disease (fibrosis *et cetera*). He did not, however, agree with his statement that there could be no question as to the advisability of induction at any period of pregnancy when history, symptoms and physical signs indicated extensive and advancing disease of the lungs. He said that the only justification for abortion was to save the mother's life and that if the tuberculosis were so far advanced that the mother could not recover, it was just as well to leave her alone. Abortion was justified only if it gave sufficient relief to allow a woman who would otherwise succumb, a definite chance to pick up again. After the third or fourth month abortion ceased definitely to offer this chance in purely tuberculous complications, though it might be justified in cardiac and renal cases. If a tuberculous woman had reached the fourth month safely, it was most probable that she would go on safely to full time. Dr. Denham said that the risk of interference after the fourth month was as great as at full time and that very frequently a tuberculous woman after this period picked up her general condition, also with alleviation of her lung condition, due probably to the increased and enriched blood supply. On the other hand, interference now should be treated as seriously as a full-time pregnancy and that at a time when the patient was without that reserve resistance which would have been built up during the later months of pregnancy. Besides this, the interference caused greater shock and the delivery was more difficult for the mother.

Apart from cardiac or renal complications, abortion, in Dr. Denham's opinion should be attempted only during the first three or four months of pregnancy and then only when the disease was advancing so rapidly or when the pregnancy conditions were such that the woman could not hope to reach full time. Rarely, if ever, should it be attempted later, for then the shock caused by interference would probably result in aggravation of the lung condition as great, if not greater, than might occur if she were allowed to go to full term. He was quite in accord with Dr. Fairfax when he said that the time following the

confinement was particularly dangerous. As at full time, so when abortion was done, all tuberculous women should be kept at rest in bed for eight to ten weeks after the interference. Otherwise they would frequently see a relapse after the fourth to tenth week which left the patient worse off than ever before, even if death did not claim her. In general cases of abortion he advised a careful inquiry into the history and if this disclosed vicarious menstruation or blood-stained sputum at the menses, it would be well to regard the patient as probably tuberculous and to keep her in bed for eight to ten weeks. In regard to abortion, the view expressed by him seemed to be supported in France by such men as Rist, Bernard, Dumarest, Brette and Couvelaire; in Germany by Winter (in part), Pankow, Gross and Menge; in America by Norris, Bridgman, Norwood, Hill, Fishberg and the Yale Women's Clinic.

DR. H. V. BARET said that in listening to Dr. Fairfax he gathered that when the pregnancies referred to by him had been allowed to go on, the patients had all recovered. This could be based on the statement that the prognosis in tuberculosis with pregnancy was essentially that of tuberculosis without pregnancy. They had to remember that when the patient was put in a sanatorium the conditions were such that the toxicity of tuberculosis was reduced to a minimum and there was no reason why pregnancy should be interrupted. In the later months of pregnancy the excursions of the diaphragm were limited and the limitation had the same effect as phrenicotomy. After delivery the patient might go downhill rapidly and this might be due to the sudden release of pressure on the diaphragm. The excursions of the lungs were greater and this must lead to extension of the disease. It seemed that prolonged rest in bed with a towel and binder would be effective, for the pressure of the latter would replace that of the fœtus for a period of time sufficiently long to allow recovery to occur. In the home conditions were different and Dr. Baret cited four sets of circumstances. In the first place, if a patient had arrested tuberculosis, she might be allowed to go on with her pregnancy if she wished to have a child. In the second place, if a patient with arrested tuberculosis did not wish to have a child, he thought that the medical practitioner would be well advised to give up his attendance on her. In the third place, if a patient had active disease and if it were possible to adopt a routine in the home similar to that of the sanatorium, the pregnancy might be allowed to go on, but under certain circumstances it might be necessary to interfere and to produce abortion. In the fourth place, if a patient with active tuberculosis did not wish to have a child, the decision as to the induction of abortion would rest on the medical findings.

DR. T. DIXON HUGHES said he did not think that the application of a tight binder would produce the happy results outlined by the previous speaker or prevent the flare-up after delivery, as even the most scientific method of resting the lung, artificial pneumothorax, had failed to prevent the downward trend in a patient of his. In reference to mitral stenosis, obstetricians should remember that they did not see the patient after she left hospital; it was not only a question of seeing the patient safely through the confinement, but of seeing that the patient was able to carry out her usual duties on her returning home. The mother frequently had to carry a heavy baby about in addition to doing her housework and this was the straw that frequently broke the camel's back. In conclusion Dr. Dixon Hughes referred to the teachings of the late Dr. McCulloch that mitral stenosis with a history of incompetence was a most serious and dangerous condition and might frequently result in grave cardiac failure associated with auricular fibrillation during delivery or after the patient returned to the normal stresses of life.

DR. SINCLAIR GILLIES expressed his thanks to the readers of the papers and said that the views of the gynæcologist and of the physician were often opposed. In latter years he had seldom been consulted on the question of the induction of abortion; he presumed that this was because he had seldom given consent. The obstetrician took the view that when a patient with tuberculosis became pregnant, her lung condition would inevitably get worse. He recalled the old idea that when girls with pulmonary tuberculosis became pregnant their general health improved. When a patient was suffering from quiescent tuberculosis in an early stage and no toxicity was present, if ordinary care were used she could be watched and it was not necessary to terminate the pregnancy. The majority of these patients did well. There was a risk that activity might increase and that the pregnancy might be allowed to progress to a stage at which the induction of abortion was difficult and dangerous. This was the only excuse for the production of abortion in the early stages of pulmonary tuberculosis. If a tuberculous patient went through her pregnancy, the crash sometimes came later because she was sent home too soon by the obstetrician and allowed to take up her everyday work. These patients should be kept in bed for at least four to eight weeks. The economic factor was of vital importance. The measures which might be adopted, differed according to whether the patient was the wife of a man of means or of a working man. In the latter circumstances she was often a mere beast of burden and in dealing with her they might well be more lenient.

In reference to the question of artificial pneumothorax, referred to by Dr. Dixon Hughes, Dr. Gillies related the history of a patient for whom this procedure had been adopted. On the tenth day after confinement the patient's temperature had risen inexplicably for twenty-four hours. She had gone home after a fortnight. She had not been seen until two months later. During this time her temperature had been 38·9° C. (102° F.) and she had been suffering from acute tuberculosis. She had been going about with this high temperature. A flare-up had evidently occurred after the confinement and the patient's pluck alone had enabled her to carry on. It was not a case of the bad effect of the puerperium, but of the mistaken fortitude of the patient.

He thought that Dr. Worrall had exaggerated the possible danger to the race from tuberculosis in the pregnant woman. Dr. Gillies held that it was rarely a question of heredity, but of the opportunity of the child becoming infected. On this account it was generally recognized that a tuberculous mother should not suckle her child.

In regard to the question of abortion and sterilization, he thought that sterilization should be practised only when a recurrence of the same conditions was inevitable. They had to remember that tuberculous patients did get better and were able to have a healthy child when a tuberculous lesion had healed.

In discussing mitral stenosis Dr. Gillies referred to a patient whom he had seen more than twenty years previously. The patient's condition had been suggestive of acute miliary tuberculosis. Her pulse rate had been 160 and both cyanosis and blood spitting had been present. The symptoms of miliary tuberculosis in the lungs had actually been caused by multiple infarcts, the result of mitral stenosis. She was six months pregnant. The patient had been given digitalis and the heart had settled down. Delivery had been uneventful. Only a few days previously this patient had brought her daughter, twenty years of age, to see Dr. Gillies. The patient's heart had been fibrillating ever since the confinement. Fibrillation was a functional condition and the patient's ability to survive depended on the condition of the heart muscle; if the muscle were not degenerated, the patient might keep going for years. The question to be determined was whether the cardiac condition was progressive or stationary. Each patient had to be treated according to the findings. As far as the heart was concerned, it was a question of what the heart muscle could do and he thought that many patients with heart disease were subjected to abortion without sufficient reason.

DR. COTTER HARVEY said that he would like to break a lance with Dr. Dixon Hughes. Artificial pneumothorax was regarded as being a great advance in the treatment of pulmonary tuberculosis and no exception was to be made as far as this statement was concerned, if pregnancy occurred. He would regard pregnancy in a patient with unilateral tuberculosis as an absolute indication for the induction of artificial pneumothorax. Further, in any patient in whom the premature termination of pregnancy

for progressing tuberculosis was contemplated, he would urge that the possibility of obviating abortion by recourse to this treatment be always borne in mind. Dr. Harvey illustrated his remarks by referring to three patients in whom pneumothorax had been produced during pregnancy with satisfactory results.

DR. J. COEN said that with regard to the question of pregnancy and heart disease, it was always advisable before terminating the pregnancy that a trial of the patient's ability to carry on should be made. When a decision to interfere had been made, the choice of method was of great importance. The objects to be aimed at were the relief of nervous strain, pain and fatigue which had an injurious effect on the heart. He thought that the strain after operation was as great as that occurring during labour. While the incidence of heart disease during pregnancy was small (0·3%), the mortality was high (15% to 25%). With induction by mechanical means the figures rose as high as 50%. After the uterus was emptied, the patient's troubles were by no means over; the risk in the puerperium was great and was due to the absorption of decidual *débris*, the degeneration of hypertrophied muscle fibres in the heart and the lighting up of an acute endocarditis. Of operative procedures Cæsarean section seemed to give the best results.

DR. E. M. HUMPHERY said that in surgical practice they all dreaded having to operate on a man who had been an athlete and had given it up. The tissues of the recently parturient woman were in the same category as those of the athlete—they had become soft. Nature trained the woman prior to delivery, there was a considerable degree of hypertrophy of all the muscles, including those of the heart. After delivery everything, including the heart, settled down and a certain amount of degeneration took place. This was a danger in cardiac conditions. Valvular disease of the heart was different from disease of the heart muscle. They knew how compensation could occur with valvular disease.

They remembered that in the old text books it had been stated that a pregnancy occurring in a tuberculous woman should not be allowed to go on. Modern methods of treatment had altered that and at the present time there could be divergencies of opinion. It was now impossible to lay down hard and fast rules; the individual was the factor. In regard to some diseases of the brain Dr. Humphery felt that heredity played a large part in its causation. It was only reasonable to suppose that since other morphological peculiarities were inherited from parents, brain peculiarities might be handed on in the same way.

Dr. Donovan in his reply referred to Dr. Fairfax's paper. He wished to stress the apparently anomalous point of view that even in early or mild, active or recently active tuberculosis induction was indicated, but that when the patient's condition was hopeless there was such a rapid advance in the disease that, as Fairbairn said, abortion should never be induced, as rapid advance followed termination of pregnancy and shortened life by that much. He agreed with Dr. Furber in regard to the prevention of future pregnancies, but thought that this should be done by sterilization or properly taught contraception. He did not think that hysterectomy was often justifiable. In the early months the one-stage operation was safe. In later stages hysterotomy with burial of the tubes should be practised. He agreed with Dr. Gibson that hysterotomy was to be preferred to induction of abortion after four months. He also agreed with Dr. Worrall in his remarks regarding failure of compensation. He thought that Dr. Dixon Hughes was perfectly correct in his views on the carrying of babies and also on mitral stenosis. In regard to the remarks of Dr. Gillies concerning rest after delivery, he thought that rest was essential, but that the ward of an obstetric hospital was not the place for its adoption. In reply to Dr. Coen he said that he did not mean to convey the impression that all pregnant patients with heart disease should be subjected to operation. At the same time he pointed out that the strain of labour was greater than the strain of Cæsarean section and that when abortion was induced at five or six months it was a messy job, was distressing and lengthy and carried with it the risk of sepsis.

Dr. Fairfax in his reply said that he agreed with Dr. Furber that hyperemesis might be an important indication for induction of abortion. When the disease was active in young women it was necessary to consider each case on its merits. He did not agree with Dr. Worrall's remarks on the importance of heredity in pulmonary tuberculosis; environment was of much more serious importance. He did not agree with all that Dr. Denham had said and referred particularly to Dr. Denham's statement that abortion should be attempted only during the first three or four months. He thought that it might be justifiable to allow the patient to go to a later stage when induction after the sixth or seventh month would be easier. He was in hearty agreement with what had been said about the necessity for prolonged rest after delivery and he supported Dr. Harvey in his views regarding artificial pneumothorax. He was sorry if he had not laid sufficient stress on the question of toxicity; he had intended to do so. He agreed with Professor Dawson that advanced conditions were often an indication for allowing the patient to go to almost full time.

Professor Dawson in his reply said that Dr. Gibson had brought out an important point in regard to special care during pregnancy and parturition in persons suffering from nervous instability. Care was necessary also in the lactational period and early weaning might be desirable. In regard to the vexed subject of heredity, he felt that their knowledge was too scanty to justify their taking a fatalistic attitude, even with a so-called bad family history.

MEDICO-POLITICAL.

THE following are the more important among the recent transactions of the Council of the Victorian Branch of the British Medical Association.

DR. FRANK L. DAVIES, after ten years of valuable service to the Branch as Honorary Secretary, has resigned and the Council placed on record the following minute:

> That this Council regrets the resignation of Dr. Frank L. Davies as Secretary of the Branch and places on record in its Minutes its appreciation of the very valuable services rendered by him to this Branch during the ten years he has acted as Hon. Secretary. The Council recognizes the great ability and tact shown by Dr. Davies in the performance of his duties. It is specially appreciative of the personal sacrifice of time and energy which he has made in his constant endeavour to further the best interests of the Branch collectively and his fellow members individually.
>
> The Council trusts that he will find it possible to continue to render the valuable service of which he is so capable.

The resolution was carried with acclamation and Dr. Davies in thanking the Council said that his work had been in the nature of pleasure as it was a form of relaxation from the routine of the practice of medicine.

DR. J. P. MAJOR was welcomed to the secretarial chair.

At the request of the Council the Permanent Committee for Post-Graduate Work agreed to allow members of the Association resident beyond twenty miles from the General Post Office to attend single lectures of a course at one guinea per lecture.

A member was informed that the charge for an assurance certificate was one guinea, unless some arrangement was made beforehand with the assurance company for a higher fee.

In connexion with the recent lunacy trial in which two medical practitioners found themselves called upon to defend their action in giving a lunacy certificate, the judge stated that the trial was one of interest to the public and that is why the case was remitted to a jury. The defendants were wholly exonerated. The Council is arranging a deputation to the Chief Secretary asking for

certain amendments to the *Lunacy Act* giving medical practitioners more protection than they have at present.

DR. A. L. KENNY has been asked to deliver the second Syme Memorial Lecture towards the end of 1931.

PROFESSOR OSBORNE, Dean of the Faculty of Medicine, was asked to deliver the first lecture under the Embley Memorial Trust.

A member was informed that advertising in the newspaper of an adjacent town that the medical practitioner would visit there on certain days, was permissible.

Legal opinion was obtained with regard to the responsibility for assistant or anæsthetist's fee at an operation as follows:

(*a*) The surgeon having engaged the anæsthetist as agent for the patient is not personally liable to the anæsthetist for his fee.

(*b*) The anæsthetist may sue the patient and as a matter of law may look only to the patient for his fee and has no legal claim against the surgeon.

(*c*) The anæsthetist's fee is payable by the patient at any time after the operation, when demanded.

The Council was informed by the College of Surgeons of Australasia that the primary examination for the Fellowship of the Royal College of Surgeons of England will be held in Melbourne in August or September, 1931, provided that not less than twenty-five eligible candidates are found to be desirous of being examined.

It has been resolved by the Council that the election by the subdivisions of representatives on the Council in October next shall be conducted by ballot in the same manner as the election in November for the general body of members is conducted. The matter will come before the special meeting of the Branch on September 3 for decision.

At a special meeting of the Branch held on July 2 it was determined that on the Council should be one woman nominated by the Victorian Medical Women's Society.

A country hospital made a proposal that owing to a shortage of junior resident medical officers, the hospital should be staffed by the loan of officers from the metropolitan hospitals. The Council pointed out that if larger salaries and sufficient inducements for professional experience were offered, the country hospitals might obtain men who had completed their first year in metropolitan hospitals. The opinion was also expressed that the present dearth of medical officers would not continue.

The Medical Journal of Australia.

The Honorary Secretary of the Victorian Branch, Dr. J. P. Major, writes:

From casual conversations with some members of the Branch it is very obvious that the new departure of the Journal in publishing special articles on diagnosis is meeting with much approval.

All recognize that the Journal exists mainly for the publication of papers of scientific importance relating to medicine, surgery and the special branches of these. Heretofore the subject matter of these papers has often dealt with matters and investigations of great interest and value to workers in special subjects, but unfortunately not of any practical value to the great majority of our members. The latter will find the new departure to be of great value to them in their daily work and we are sure that the Journal will now be more generally read than has been the case.

Especially welcome will such articles be to the younger members of our profession and already house physicians and surgeons have expressed their pleasure with the few articles already published and are looking forward to articles of like general utility on other subjects, as treatment *et cetera*.

In recent years *The Lancet* has published a most valuable series of articles dealing with diagnosis, treatment, interpretation of various clinical tests and so on. These articles were widely sought after and we are confident that our own Journal can produce an equally valuable series of articles on somewhat similar subjects that will be appreciated by all, but especially by the newer graduates and by those in general practice.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University of Sydney was held on July 7, 1930.

Approval was given to the appointment of the following gentlemen as examiners in connexion with the final degree examination in medicine to be held in August.

Medicine: Professor A. E. Mills, Dr. Cecil Purser.

Clinical Medicine: Dr. C. Bickerton Blackburn, Dr. H. J. Ritchie, Dr. E. W. Fairfax, Dr. Holmes à Court.

Surgery: Acting Professor B. T. Edye, Dr. H. Skipton Stacy.

Clinical Surgery: Dr. George Bell, Dr. H. R. G. Poate, Dr A. J. Aspinall, Dr. J. L. McKelvey.

Obstetrics: Professor J. C. Windeyer, Dr. P. L. Hipsley.

Clinical Obstetrics: Dr. Constance D'Arcy, Dr. A. J. Gibson.

Gynæcology: Dr. Reginald Davies, Dr. Cedric Bowker.

Psychiatry: Professor W. S. Dawson.

Diseases of Children: Dr. E. H. M. Stephen, Dr. F. C. Rogers.

The following conditions were approved for the award of the "Harry J. Clayton Memorial Prize":

Founded in 1929 by a gift of £1,044 from relatives and friends as a memorial of the late Harry John Clayton, M.B., Ch.M., for seven years Medical Superintendent of the Royal Prince Alfred Hospital and Tutor in Medicine from 1922 to 1928.

The prize is awarded annually at the final degree examination for proficiency in medicine and clinical medicine on the recommendation of the examiners. Value £50.

The following conditions were approved for the award of the "A. Liston Wilson Fellowship":

Founded in 1930 by a gift of £5,000 from A. Liston Wilson to promote research into spastic paralysis.

(1) The fellowship shall be awarded by the Senate of the University of Sydney acting on the recommendation of a committee comprising the Dean of the Faculty of Medicine, the Professor of Anatomy and a practising member of the medical profession. to be appointed from time to time by the Senate.

(2) The holder of the fellowship should where possible be a graduate in medicine with experience in hospital or in general practice for at least one year.

(3) The subject of research by the holder of the fellowship shall be spastic paralysis or some closely allied subject.

(4) The holder may be a full-time fellow or part-time fellow as determined by the Senate on the recommendation of the committee and the fellowship may be held in Sydney or it may be a travelling fellowship. The tenure of the fellowship shall be for one year, but it may at the discretion of the Senate be renewed for one or more years. The fellow shall be required to furnish quarterly to the committee a written report of the progress of his investigations.

(5) In the case of all work published as a result of holding any Liston Wilson Fellowship, the fellow shall distinctly indicate in his publications that he is the holder of a Liston Wilson Fellowship of the University of Sydney. Value £250 *per annum*.

The following conditions were approved for the award of the "Norton Manning Memorial Prize":

Founded in 1907 by the gift of £125 from the subscibers to a memorial of the late Dr. F. Norton Manning. The prize is awarded for proficiency in psychiatry as exhibited at the final degree examination in medicine and by a clinical commentary on a selected case, to be handed in before the examination. Value £20.

It was resolved to admit Professor H. J. Wilkinson, Professor of Anatomy, University of Adelaide, to the degree of Doctor of Medicine for his thesis entitled "The Innervation of Striated Muscle." The examiners were of opinion that the thesis was an original contribution of distin-

guished merit adding to the knowledge and understanding of anatomy. One of the examiners (Professor J. T. Wilson, of Cambridge) writes: "The thesis submitted proves its author to be a skilled investigator in one of the more difficult fields of anatomical study. There can be no doubt of the value of the thesis as a whole as an original contribution to knowledge, neither as to the competence and ability of the author as an anatomist and histologist"; while another examiner (Professor Burkitt) says: "This thesis merits the award of the M.D. degree, and is probably one of the most important theses in anatomy which have as yet been submitted to the Sydney University Faculty of Medicine for this degree."

Dr. Wilkinson, after graduating Master of Arts in the University of Adelaide, took the degrees of M.B. and Ch.M. in Sydney University in 1925 with second class honours. In 1927 he was appointed Senior Lecturer and Demonstrator in Anatomy at Sydney University and in the following year was awarded a Rockefeller Foundation Fellowship. After carrying out extensive research in various universities in Europe and America he was appointed in March, 1930, to the Chair of Anatomy in the University of Adelaide.

Correspondence.

DIATHERMY OF TONSILS.

SIR: Dr. Cahill's enthusiasm for a bloodless method of efficient treatment of noxious tonsils seems to me to warrant attention. He has been bold enough to attack his own by self-applied diathermy and he has explicitly published the procedure and his experience following it.

For almost a year I have been using surgical diathermy for the destruction of tonsils and I am convinced that in certain cases in adults it is an improvement on the cutting operation if one approaches the question from the viewpoint of convenience as well as welfare of the patient. It seems to me to be all that its ardent advocates plead as regards absence of pain or disability following. But having a *"festina lente"* quality, the method is tedious even for the patient. Some of mine have asked for (and been granted) the cutting operation after a few treatments; others, though still attending for their ear condition, have asked to sidestep the diathermy till they can afford time for surgical removal. And I have not seen one case in which I could say that all the tonsil had gone, though I have seen many where my imagination refused to believe that the residual tissue could be or become noxious. I have had some also where after as many as nine treatments the amount of tonsil tissue with crypts remaining has not seemed to be much less than the original organ, though the patients have been firm in their belief in comfort and well-being, and I have had one where two treatments caused the almost complete disappearance of what appeared to be big tonsils.

I still prefer to dissect out the offender because I like the work better; and I think the diathermy advocates should be open enough to offer for our consideration the whole of their cases. I am not alone in my knowledge that many "successfully removed" diathermy tonsils are still finding their way to the operating theatre for the removal of a noxious thing that reminds one very much of a tonsil only it is much harder to shift. The diathermy enthusiasts should realize this. It is not sufficient to say that the same thing happens with dissection, because in the latter case the fault is with the operator, not with the method. Nor is it adequate to quote eminent surgeons as convinced advocates of the innovation. Others just as eminent have not been convinced after extensive trials and in any case even leaders in surgery have often been illogical enthusiasts in some or other line of treatment.

Nor do I think that Dr. Cahill in his spirited reply to criticism offers a reasonable comparison as between self-dissected and self-"diathermied" tonsils, unless his idea is that the patient might be led to adopt the latter practice himself. We are concerned with what is best for the patient in skilled hands, not with "every man his own surgeon" ideas. But I admire Dr. Cahill for his pluck and would like to hear if he considers that he can guarantee to his patients that what remains after his procedure in the tonsil fossa is tissue that never can become a storehouse of germs again; the dissecting surgeon can do this. Personally I should welcome a bloodless method, but I don't think diathermy, even in the hands of its keenest enthusiasts, has proved its claim.

Yours, etc.,

ARTHUR MURPHY, M.B., Ch.M., F.C.S.A.

REVISION OF THE AUSTRALASIAN PHARMACEUTICAL FORMULARY.

SIR: At the recent meeting of the Australasian Pharmaceutical Conference held at Brisbane it was decided to publish forthwith a revised issue of this formulary and it has been suggested that some of your readers might desire to assist by contributing formulæ for the new edition. It is perhaps hardly necessary to point out that the British Pharmacopœia, published as it is at long intervals, must always lag behind current methods of treatment; it never has been and never can be an adequate guide to the medical practitioner in such matters. Indeed each edition of the British Pharmacopœia tends to become more of an analytical and pharmaceutical standard with practically no information for the medical man, except on dosage. With the discovery of new methods of treatment with both old and new drugs there is a real need for such unofficial guide books as the British Pharmacopœia Codex in Great Britain and the Australasian Pharmaceutical Formulary in Australia. These do supply the medical man with information concerning standard preparations of unofficial medicaments and obviate the necessity of prescribing proprietary articles. In the new edition it is proposed to include standard formulæ for types of preparations which, when ordered with the initials "A.P.F.," will insure a uniform product when dispensed in any part of the Commonwealth. By this means something will be done to remove a frequent source of annoyance, especially to patients travelling with prescriptions for mixtures *et cetera* with titles of the local hospital pharmacopœia. Again, recent legislation has rightly curtailed the use of habit-forming drugs and your readers may desire to assist in providing formulæ for non-addictable drugs, such as "Novocain," ephedrine *et cetera*, whenever such change may be feasible. Criticism of the present volume will be appreciated and suggestions which will make this new edition as valuable as possible to the medical practitioner. Finally, the Revision Committees have not lost sight of the question of economy and wherever possible have chosen the simplest and least costly methods.

Yours, etc.,

H. FINNEMORE,
Editor, A.P.F.,

Pharmacy Department,
University of Sydney.
July 4, 1930.

ENCEPHALITIS PERIAXIALIS DIFFUSA.

SIR: In the current issue of the Journal, in the "Current Comment" on *encephalitis periaxialis diffusa*, page 23, I notice that the writer says that only one case is reported in Australian literature—by Maudsley and Smith in *The Melbourne Hospital Clinical Reports*.

Although this is strictly true so far as the Australian literature is concerned, I should like to point out that in *The Lancet*, 1929, II, October 26, pages 864-866, Professor

Woollard and I described a case which occurred in the Adelaide Children's Hospital in 1928-1929. I believe that this is the first case to be recognized in Australia.

Yours, etc.,

C. T. CH. DE CRESPIGNY.

219, North Terrace, Adelaide.
July 8, 1930.

MEDICAL CERTIFICATES.

SIR: As one who has suffered much from, first, the difficulty of deciphering the writing, more especially the signature, of medical practitioners and, secondly, the loose use of medical terms, I beg to appeal for more carefulness in medical cartification.

Not only are some certificates useless owing to such vague terms as "Suffering from injury to knee, arm *et cetera* . . .," but occasionally such certificates are ante- or post-dated.

In notifying cases of infectious disease, some medical practitioners obviously show little acquaintance with the requirements of the Act.

It is very difficult for medical practitioners and almost impossible for laymen who are mainly engaged in work on vital statistics, to classify the causes from certification of death, even with the wide international tables.

One suggestion I would like to make to every reader is never to sign his name to any medical certificate without also printing it. Much valuable time is wasted in trying to decipher signatures.

Conscious that this letter will have little effect, I have asked the Director of the School of Hygiene and Tropical Medicine to impress on all medical students the absolute need for exactness and clarity in certification with the hope that some future generation of medical practitioners will be so trained.

Yours, etc.,

J. S. PURDY,

Metropolitan Medical Officer of Health,

Queen Victoria Building, Sydney.
Sydney.
July 17, 1930.

Congress Notes.

CONFERENCE ON SILICOSIS IN SOUTH AFRICA.

A MEETING of first importance in the sphere of industrial health matters takes place next August in Johannesburg. The International Labour Office of the League of Nations in conjunction with the Transvaal Chamber of Mines has convened a conference of experts on silicosis. The League of Nations at its own expense has invited experts from Australia, Belgium, Canada, Germany, Great Britain, Italy, Netherlands and the United States of America.

Dr. Charles Badham, of the Department of Public Health of New South Wales, received the nomination of the League for Australia, while the Commonwealth and New South Wales Governments were invited to send representatives and Dr. Moore, Director of Industrial Hygiene of the Commonwealth, and Dr. George, Medical Officer in charge of the Bureau of Medical Inspection at Broken Hill, will attend.

The International Labour Office has arranged for an expert from each country to deal with silicosis and closely related dust diseases, the researches made and the results achieved, including particulars of compensation where it is granted. Johannesburg for the last twenty years has been one of the leading centres in the study of dust diseases of the lung and mining hygiene. A vast wealth of knowledge has been accumulated by the medical practitioners, chemists and other scientific workers engaged in the investigation of dust diseases of the lungs. The mines at Johannesburg are immense. Twenty thousand European miners and two hundred thousand native miners are employed. Annually from three to four hundred white miners receive compensation for silicosis. The magnitude of the medical work which is done in Johannesburg may be indicated by the fact that over a quarter of a million X ray photographs of miners' chests have been taken.

An equally great amount of work has been done to prevent the scourge of silicosis and tuberculosis among the miners, for in dust prevention methods the South Africans lead the way.

The broad outlook of the League of Nations in convening this conference is a matter for sincere congratulation. The deliberations of the conference cannot fail to result in useful additions to knowledge, particularly in the prevention of dust diseases.

INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS.

AT the thirteenth International Ophthalmological Congress held recently at Scheveningen, Sweden, steps were taken to form an international association for the prevention of blindness. Representatives were sent to the congress from the League of Nations, the League of Red Cross Societies, the International Union against Tuberculosis, The American Association for the Prevention of Blindness and from twenty-eight different countries. It was stated at the congress that the blind population of the different countries is approximately as follows: China, 500,000; India, 1,500,000; the United States of America, 76,000; Great Britain, 53,000; Germany, 36,000 and other countries with smaller numbers. According to the latest estimates 95% of the native population of Egypt suffer from trachoma and 90% of the school children of southern Tunis are afflicted with this disease. The members of the congress did not regard the problem of blindness as being insoluble, in spite of its magnitude. Blindness is often due to preventible accident and in such infections as trachoma, small pox and purulent ophthalmia it may be avoided. The new organization has been well sponsored and good results may be expected in due course.

Books Received.

INSOMNIA: AN OUTLINE FOR THE PRACTITIONER, by H. Crichton-Miller, M.A., M.D.; 1930. London: Edward Arnold and Company. Demy 8vo., pp. 184. Price: 10s. 6d. net.

PHYSIOLOGICAL PRINCIPLES IN TREATMENT, by W. Langdon Brown, M.A., M.D., F.R.C.P., with the collaboration of R. Hilton, M.A., M.B., M.R.C.P., Sixth Edition; 1930. London: Baillière, Tindall and Cox. Crown 8vo., pp. 474. Price: 10s. 6d. net.

PRACTICAL MEDICINE SERIES, COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: GENERAL THERAPEUTICS, by Bernard Fantus, M.S., M.D.; 1929. Chicago: The Year Book Publishers. Crown 8vo., pp. 440, with illustrations. Price: $2.25 net.

PRACTICAL MEDICINE SERIES, COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: DERMATOLOGY AND SYPHILIS, edited by William Allen Pusey, A.M., M.D., and Francis Eugene Senear, B.S., M.D., with the collaboration of Max S. Wien, M.D.; UROLOGY, edited by John H. Cunningham, M.D.; 1929. Chicago: The Year Book Publishers. Crown 8vo., pp. 448, with illustrations. Price: $2.25 net.

SENSATION AND THE SENSORY PATHWAY, by John S. B. Stopford, M.D., F.R.S.; 1930. London, New York, Toronto: Longmans, Green and Company. Demy 8vo., pp. 156, with illustrations.

HEAR WITH YOUR EYES BY READING WORD-FORMS ON THE FACE, by M. E. Good; 1930. London: Methuen and Company Limited. Crown 8vo., pp. 48, with illustrations. Price: 2s. 6d. net.

YOUTH AND DISEASE: PLAIN FACTS ABOUT VENEREAL DISEASE AND MODERN VIEWS ON SEX PROBLEMS, by Robert V. Storer, M.R.C.S., L.R.C.P., with an introduction by J. S. Purdy, D.S.O., M.D., C.M., D.P.H., F.R.S., F.R.S.I., Revised Popular Edition of SEX AND DISEASE: 1930. Sydney: Butterworth and Company (Australia) Limited. Crown 8vo., pp. 134, with illustrations. Price: 4s. net.

Diary for the Month.

AUG. 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.
AUG. 5.—New South Wales Branch, B.M.A.: Post-Graduate Work Committee.
AUG. 5.—New South Wales Branch, B.M.A.: Hospitals Committee.
AUG. 6.—Victorian Branch, B.M.A.: Branch.
AUG. 7.—South Australian Branch, B.M.A.: Council.
AUG. 8.—Queensland Branch, B.M.A.: Council.
AUG. 11.—Queensland Branch, B.M.A.: Medical Section.
AUG. 12.—New South Wales Branch, B.M.A.: Ethics Committee.
AUG. 14.—New South Wales Branch, B.M.A.: Clinical Meeting.
AUG. 14.—Victorian Branch, B.M.A.: Council.
AUG. 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUG. 22.—Queensland Branch, B.M.A.: Council.
AUG. 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
AUG. 27.—Victorian Branch, B.M.A.: Council.
AUG. 28.—New South Wales Branch, B.M.A.: Branch.
AUG. 28.—South Australian Branch, B.M.A.: Branch.

Medical Appointments.

Dr. A. Curtis (B.M.A.) has been appointed Acting Medical Superintendent of the Hospital for the Insane at Sunbury, Victoria, from June 21, 1930.

* * *

The undermentioned have been appointed Members of the Medical Board of South Australia: Dr. A. A. Lendon (B.M.A.), Dr. B. H. Morris (B.M.A.), Sir H. S. Newland (B.M.A.), Dr. R. S. Rogers (B.M.A.) and Dr. H. H. E. Russell (B.M.A.).

* * *

Dr. A. R. Haywood (B.M.A.) has been appointed Public Vaccinator at Hastings, Victoria.

* * *

THE undermentioned reappointments have been made in the Adelaide Hospital: Dr. D. R. W. Cowan (B.M.A.) and Dr. C. T. Ch. de Crespigny (B.M.A.), Honorary Physicians; Dr. A. R. Southwood (B.M.A.), Honorary Assistant Physician; Dr. R. E. Magarey (B.M.A.), Honorary Gynæcologist; Dr. H. C. Nott (B.M.A.), Honorary Radiologist; Dr. F. H. Makin (B.M.A.), Honorary Dermatologist; Dr. H. W. Wunderly (B.M.A.), Honorary Assistant Pathologist; Dr. A. D. Lamphee (B.M.A.) and Dr. G. E. Jose (B.M.A.), Honorary Anæsthetists; Professor C. S. Hicks, Honorary Clinical Physiologist; Dr. R. M. Glynn (B.M.A.), Honorary Clinical Assistant, Aural Department; Dr. E. F. Gartrell (B.M.A.), Assistant to Honorary Officer in Charge of Electrocardiograph; Dr. H. R. Pomroy (B.M.A.), Honorary Clinical Assistant, Venereal Clinic (Male Section).

* * *

Dr. S. B. Forgan (B.M.A.) has been reappointed as a Member of the Port Pirie Medical Board, South Australia, under the provisions of the *Workmen's Compensation Act Amendment Act*, 1927.

* * *

Dr. V. F. B. Lennon and Dr. F. J. Ryan have been appointed Resident Medical Officers for certain interchange duty at the Parkside Mental Hospital and the "Mareeba" Babies' Hospital, South Australia.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi.

REPATRIATION COMMISSION: Junior Resident Medical Officer.
THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY, NEW SOUTH WALES: Resident Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 21, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting apopintments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Mount Isa Hospital. Boonah Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £1 for Australia and £2 5s. abroad *per annum* payable in advance.